American Bee Journal

Vol. 95 No. 1 JANUARY 1955

WAVY

PAGE

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1001 S. Waits Ave. Sioux Falls, S. Dak."

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THE AMERICAN BEE JOURNAL
HAMILTON, ILLINOIS
Vol. 95, No. 1 January, 1955
Editor — G. H. Cale
Associate Editors — M. G. Dadant, Roy A. Grout
Managing Editor — Adelaide Larson

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Comments

KANSAS—Take a bow, Frank. Gilbert L. Brocker, Kansas City, (your town), says: "I especially enjoy Frank McLaughlin's answers and his discussion of the problems of the beginner. His style is clear, concise and easy to understand."

NEBRASKA—E. H. Adee, Sutherland, says "When you say we should feed, when we need to, with sugar sirup it makes me see red. It will not build up a colony fast and strong. This past season we fed about 35,000 pounds of reserve honey and the bees were in fine shape for the flow. We have bees over an area 400 miles across and not a single yard let us down."

CALIFORNIA—Norman C. Burnett, 1121 Raleigh St., Glendale asks: "Where can I get a set of plans for a first class observation hive? At fairs and exhibits, observation hives are a center of attraction, but most that I see are not up to what I think they should be. I am on our Fair committee to see that we have something better next year." Any suggestions?

INDIANA—Vernon Reuter, Milford, suggests: "Your feature story in November and December on the honey house, by H. L. Maxwell, was fine. But I want to write to him and you don't give his address. Why don't you include the address at the end of the story?" Here's why, Mr. Reuter. We used to do it but got so many complaints from authors that they were smothered in letters we quit it. Just ask for the address or send inquiry to the author to ABJ and it will be forwarded.

S. C. Weddle, Columbus, calls for a full sized blush: "The February issue was simply wonderful. I especially like the many pictures and the short articles. As a backyard beekeeper, the many pointers I get from ABJ help me immensely to do a better job."

MISSOURI—Marvin C. Miller, Dexter, is disgusted: "I am not renewing my subscription, as long as this bunch down here spray so generally, without regard for the beekeeper, and the quails. There is no use for anyone to try and keep bees or read a magazine about them. My bees have been killed and the quails are few. Looks like there should be some other way to combat the insects on the farmers' crops. They spray; but the bugs eat the crops just the same."

NEW JERSEY—Dudley F. Burnett, Plymouth Gardens, Boonton, is a typical enthusiast: "Good morning. You are ahead of the eight ball when you say ABJ is welcome. When its outside dress is removed, and I sit down in my favorite chair in my humble home and inhale its contents I can smell bees and honey; here in my new home where I get so much good living among my flowers and gardens. I have six colonies of bees in a beautiful valley 45 miles from home, a lovely ride to northern New Jersey. I run them for comb honey on a dairy farm in Flat Brook Valley, east of the Delaware River and north of the Delaware Water Gap. You should see this beautiful country Nature has created for us; alfalfa for pollen, fruit trees, sumac, basswood, and native fall flowers, resulting, under good management, in a nice surplus of comb honey."

Abroad

Denmark

International Convention

European bee magazines are reporting on the International Meeting at Copenhagen. There seems to be a feeling that the scientific sessions were well worth while but that there was no opportunity to hear from producers and commercial interests, who might have as good reason to exchange confidences as the scientists. Some suggestions that three years hence at the Austrian meeting, there be made a provision for separate sessions for the commercially minded beekeepers who are attending. This would also relieve the burden on over-attended sessions.

England

Honor for Charles Butler

On Nov. 14 at the Parish Church of Wooton, St. Lawrence, Hampshire in Britain there was unveiled a "Coronation window" in memory of Charles Butler, vicar there from 1600 to 1647.

Butler's notable book on bees "Feminine Monarchie" is still a collector's item in beekeeping circles.

Dr. H. M. Fraser attended the ceremonies and had the pleasure of proposing a toast to Butler in Butler's tithe barn. The toast was drunk in mead.

Egypt

Scale Colony Gains and Losses

Two reprints from Bull. Soc. Fouadier Entomology (Egypt), vol. 38 pages 323 and 363, are of articles written by A. K. Wafa, B.Sc., Ph.D., London, now in charge of Apiculture at Cairo University. Mr. Wafa did his research at Rothamsted.

The articles have to do with the changes in weight in colonies on scales both during the active and the inactive season.

At Rothamsted, where the average per colony production is from 17 to 18 pounds, it takes about 36 pounds of stores to carry an average colony through the inactive season.

Lowest temperatures at which a colony gains weight during a honeyflow are 60 to 64 degrees F.; the highest, 80 to 84. Highest gains were recorded between 74 and 79 degrees. Wafa substantiates the general belief that cool nights followed by warm days, or a high daily range appears to produce greatest colony activity and thus greatest poundage gains. A dry atmosphere prolongs duration of flights. High barometric pressure apparently activates flights and thus colony gains.

Russia

Translations

Marie Simpson is the translator of a series of articles on bees and beekeeping appearing in the Russian press. The booklet of some 40 pages of translations is put out by the Bee Research Association and obtainable from A. J. Kirby at 2 Northover, Bromley, Kent, England, at a price of 75 cents postpaid.

Some titles are behavior of queens, swarming, swarm separation, queen rearing, reciprocal feeding, behavior of bees, matings, maturity of drones, honeydew honey, etc.

The American Bee Journal

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1955

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100 up	1.10	3.25	4.15

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Use ABJ Labels — They Get Results

Honey Bees Make Hybrid Cotton Possible

by Roy A. Grout

"HYBRID cotton has been talked about for 40 years, but like Mark Twain's weather, little has been done about it." So stated D. M. Simpson, agronomist with the U. S. Cotton Field Station, in a recent Tennessee publication. But R. H. Peebles of the U. S. Cotton Field Station at Sacaton, Arizona, has been doing something about it, according to S. E. McGregor, apiculturist with the Beekeeping and Insect Pathology Section, Tucson, Arizona, who spoke before the Texas State Beekeepers' meeting in November.

According to McGregor, Peebles obtained hybrid cotton seed, in 1952, by hand cross-pollinating two strains of long-staple cotton. The hybrid produced 25.5 per cent more cotton than the best parent and the spinning data was satisfactory. This increase in production of the hybrid seemed sufficiently alluring to strive for under field conditions. Therefore, early in 1954, Peebles suggested that the bee culture laboratory in cooperation with the College of Agriculture, University of Arizona, supply honey bees to perform the necessary crossing on a 10-acre hybrid cotton experiment. Five acres were planted to alternate rows of the two varieties and five acres were planted to two rows of one variety to one of the other. These plots were near Waddell, Arizona, in the Salt River Valley about 30 miles north of Phoenix.

To provide adequate pollination of the 10 acres devoted to hybrid seed production, it was necessary to take into consideration the other acres of cotton nearby. Within a mile of the plots there was found to be a total of 915 acres of cotton, and within two miles a total of 3,465 acres of cotton. Because of the importance of this experiment, Frank E. Todd and S. E. McGregor were able to obtain 700 colonies of bees owned by Clarence Benson, which were placed around the plots as follows:

100 colonies in groups of 20 along one side and one end of the plots.
160 colonies in four groups of 40 in a quarter-mile ring around the plots.
120 colonies moved in after flowering had reached its peak, also within a radius of a quarter mile.
240 colonies in six groups of 40 in a half-mile ring around the plots.
80 colonies ¾ mile away.

In addition 558 other colonies were moved within two miles of the plots during flowering. This 1,258 colonies may seem like a high concentration of colonies but it actually amounted to only one colony per acre within a one mile radius.

At the beginning of flowering, a 150-foot section of a row of cotton of average height and appearance was selected in the hybrid plots and at four other locations at quarter-mile intervals up to 1¾ miles from the plots. These rows were visited at about 11 a. m. frequently during the season and counts made of bee visitors, flowers, percentage of stigmas satisfactorily coated with pollen, and flowers without dehisced anthers. The average number of bees per location decreased from location 1 in the plots to the farthest location as follows: 24, 20, 16, 14, and 4. The percentage of stigmas well coated with pollen likewise decreased with increased distance beyond the second plot as follows: 66, 80, 59, 54, and 44 per cent. The stigma coverage reflects mainly the activity of honey bees.

When moved to the cotton, most colonies were rather weak either from previous insecticide damage or from lack of sufficient pollen. Pollen

Colonies of honey bees protected from the heat of the sun's rays by a ramada, is a common sight in Arizona. This apiary is the property of Clarence Benson who furnished the bees for the hybrid cotton seed experiment.

storage from cotton was of no significance from the standpoint of colony maintenance, and colonies became alarmingly weak. After midsummer weeds appeared in the fields, pollen became available and colonies improved. The lack of a good pollen source or supplement was a serious detriment in this situation, but the owner of the apiaries removed an average of 60 pounds of honey per colony nevertheless.

Cotton flowers secrete nectar attractive to bees only during the one day the flower is open. Extra-floral nectaries secrete nectar over a period of several days or longer, and it may remain in the nectary to become highly concentrated. Floral nectar has a sugar concentration of 20 to 30 per cent but exposed extra-floral nectar may reach a concentration of 60 to 80 per cent. Naturally the honey bee would go to the most concentrated source, the extra-floral nectar, and would not visit the flower until this nectar was gone. The wild bee, interested in pollen, goes first to the flower and rarely to the extra-floral nectaries. Thus bee for bee, the wild one is much more effective as a cotton pollinator. But by concentrating sufficient honeybee colonies in an area to remove the extra-floral nectar, the honey bee may be forced into the flower to obtain nectar, and thus become an accidental pollinating agent. Such was the case in the Arizona experiment which showed that the honey bee can be a cotton pollinator of great importance in an area considered to have low natural crossing.

McGregor pointed out that the evidence at present, although still far from complete, is beginning to establish the honey bee as a potential factor of significance in cross-pollination of cotton, and the use of honey bees as a tool in this relationship should be studied by agronomists, entomologists, plant physiologists, and apiculturists, as a furtherance of general agriculture of which cotton production and honey bees are both an integral part.

At present only Mr. Peebles' hybrid has shown increases in both quantity and quality sufficient to make its production worthwhile. This hybrid will be limited to the extreme Southwest and probably will never represent more than a small fraction of the total U. S. cotton production. Breeders of upland cotton are also looking for varieties that, when combined, will produce superior hybrids, and they believe such hybrids can be found. When they are found, only research can reveal how the hybrid program should be handled

Let us assume that a Texas cotton breeder has found two suitable combiners. How can the hybrids be obtained economically? As so-called natural crossing in his area is low, he will have to rely on imported honey bees to do the crossing. How can he plant to obtain maximum efficiency from the pollinators? How many colonies will be needed and how distributed in and around the fields? How can he determine the amount of crossing he is getting and the factors affecting the crossing? How will he control harmful insects and protect the pollinators? Will the colonies be able to produce a crop of honey or will the services of the bees have to be paid for?

Can the beekeeper supply the quantity needed and maintain colonies in optimum condition for pollination? Can a pollen-collecting strain be developed, or can the emphasis of colony activity be shifted from nectar collecting to pollen gathering. How will the problems concerning bee locations be handled? Will efficiency of the honey bee be limited to areas of certain soil types, or to more attractive varieties? Can a suitable pollen substitute be developed that will maintain colonies in proper conditions?

According to McGregor, this and other necessary information must be obtained through research, and the cotton breeder will need the answers to produce hybrid seed. Cotton breeders believe that the use of hybrid cotton may place production on new heights. From the beekeeper's standpoint, the interesting part is that hybrid cotton can be produced only through use of pollinating insects. In much of the cotton belt, this will necessitate the use of honey bees because they are the only pollinators that can be supplied on demand in quantities of economic significance. Research on these questions can mean increased revenue to both the cotton and the bee industries.

Long-staple Egyptian cotton, common to the extreme Southwest, represents only a fraction of our total cotton production.

Reports on Insecticides . . .

G. F. Knowlton, Extension Entomologist, Utah State College, writing with Lieberman, Bohart and Nye, reports additional studies on effect of insecticides on honey bees. On the basis of a limit of 10 per cent mortality, the following treatments are considered too toxic for honey bees: early morning sprays of TEPP 6 oz., malathion 10 oz., dieldrin 1 oz., heptacolor 4 oz., aldrin 2 oz., chlordane 1 pound, endrin 4 oz., and an early morning dust of DDT 0.5 per acre. Treatments classified as safe in addition to toxaphene include morning sprays of DDT 0.5 pound and Systox 6 oz., and evening spray of TEPP 6 oz. per acre.

Other Utah circulars discuss safeguards during orchard spraying, raising bees and growing alfalfa seed without destroying pollinators. All are available from Utah Agricultural College at Logan, Utah.

Nosema Disease and Its Prevention

by Dr. Howard E. Cmejla
Abbott Laboratories

NOSEMA is an infectious disease of the adult honey bee, caused by a microscopic single-celled animal (a protozoan), named **Nosema apis.** According to Sturtevant of the U. S. Department of Agriculture, nosema is probably the most widespread of all the diseases of the adult honey bee. It has been found in all of the beekeeping regions of the world where it has been sought. It was discovered to be present in honey bees in the United States over 40 years ago. In the first survey conducted in this country, White of the U. S. Department of Agriculture reported as early as 1914 that he found this infection in bees from all parts of the United States, from the east coast to California and from the Gulf of Mexico to Canada. However, even today beekeepers do not always recognize that they have nosema in their colonies. Such local names, however, as spring dwindling, crawling bees, weak colonies, paralysis, and dysentery unknowingly describe some of the common manifestations of the disease.

The course of nosema in the individual bee and the colony is insidious rather than sudden and dramatic, but may be disastrous nevertheless. The early low level of infection goes unnoticed because at this stage it can be detected only by microscopic examination. Thus, the presence of the disease is usually not realized until most of the bees in the colony are infected. Frequently the colony has already become crippled before the beekeeper is aware that his colonies are diseased.

Effect Upon the Bee

The brood is not infected, only the adult bees. The adult bee becomes infected by taking in the spores of **Nosema apis** with food or water or when removing dead bees or the droppings of infected bees. The active stages of the parasite escape from the spores in the digestive tract and invade the cells lining the stomach (the ventriculus). As the parasites multiply and grow, they destroy these cells and invade other similar cells. The stomach becomes swollen and the muscles of the stomach wall become weak. According to Lotmar in Germany, the development of the salivary glands is retarded also. The damage to the tissues of the bees may produce dysentery and so weaken the bees that they appear to be partially paralyzed and unable to fly or work normally.

Infected workers, unlike normal workers, may defecate in the hive. They are not killed immediately, but their lives are shortened. White showed that 80-90 per cent of worker bees died within a week after being taken from an infected colony, whereas, in the same period of time only 8 per cent of the workers from an uninfected colony died. In experiments by Farrar, caged bees experimentally infected lived on the average only half as long as uninfected bees.

According to Fyg, in Germany, when a queen becomes infected, egg production is reduced, and those eggs which are laid may fail to develop. Farrar, in the U. S., has noted that infected queens may stop laying suddenly and immediately become sluggish. Both workers report, as would be expected, that queen supersedure follows.

Effect Upon the Colony

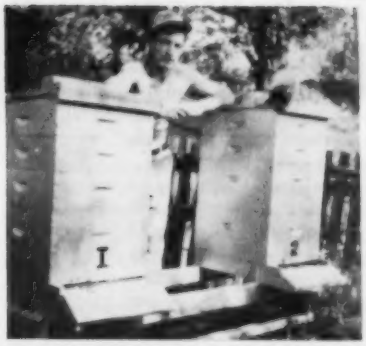
Infection with **Nosema apis,** according to Farrar, "restricts the production of all classes of colonies." Although there is no evidence of the actual infection in the brood itself, it is brood production which suffers, and as a result of the poor brood production the colony becomes weakened. Most frequently this is due to the fact that the infected workers are unable to care for the brood. Furthermore, when the queen is infected, the resulting supersedure further delays brood production. Farrar reported, in 1942, as high as 18 per cent supersedure of queens, most of which was due to nosema disease. Barnes of the U. S. Department of

(Please turn to page 21)

Infected ventriculus.

Normal ventriculus.

(Photos from Abbott Laboratories, N. Chicago)



Here is a picture of me, taken by my wife. Both colonies are headed by hybrid queens which surely do turn out a lot of bees that make big colonies for a bang-up crop.
James C. Bowles
Alton, Illinois

Bees Increase Soybean Yield

Through improved methods, crop yields have doubled and even trebled in Vernon County, Mo., over yields of 25 years ago. This has been made possible through the help of county agents, soil testing, fertilizers, improved seeds and modern farm machinery.

However, we have overlooked an important ally, the honey bee. Scientists, agriculturists and horticulturists are realizing the importance of this little insect in pollination.

Tests have proved that bees increase production of fruit trees and clover. Three years ago, I placed 12 hives of bees at a farm home near Nevada, Mo. The farmer noticed that bees were working heavily on the soybean bloom. In the fall, this field produced 28 bushels of beans per acre and it was the farmer's opinion that pollinizing by the bees had increased the yield by several bushels per acre.

This year, I placed nine hives near 100 acres of beans at blooming time. The number of colonies was inadequate to make a good test, but the plots nearest the hives averaged two bushel per acre more than beans planted farther away, with other factors equal.

Scientists now claim that every farmer should keep bees in his own back yard to pollinize his fruit, garden and field crops. They state that the value of keeping bees is ten times greater in bigger and better crop yield than in the amount of honey produced.

Pascal G. Bryant,
State Representative, Missouri

Colorado Promotes Honey

by Joseph O. Moffett

COLORADO beekeepers are doing a fine job of promoting honey by means of TV shows, radio and newspaper ads and school demonstrations. It all started in 1950, when Colorado beekeepers voted to take constructive steps to publicize honey. A marketing agreement was made with a committee of eight beekeepers and three packers to operate it. It is called the Colorado Honey Administrative Committee or CHAC. A part-time manager, Otto Pfretzschner of Denver, was hired July 1, 1951. Funds are raised by assessments—ten cents for every sixty pounds of honey produced and a levy of 1.5% of the gross income received from bees for pollination services.

Publicity Programs

TV—Time for TV programs was obtained without charge in 1954. One featured Edmund P. Hillary, world famous conqueror of Mt. Everest and an Australian beekeeper; another explained and showed different types of honey and a live display of bees; and on June 12 a show conducted by Mrs. Ardis Sturdy told the fascinating tale of bees and honey with six children from the state orphan's home helping tell the story.

Radio—Pfretzschner has furnished Denver stations with short stories on bees and honey and honey recipes which are used without charge as fillers. CHAC has bought ads on radio and 54 spot honey ads were read over several stations during the winter of 1953-54.

Newspaper—CHAC ran honey ads in 22 Colorado papers during the winter of 1953-54. Also 8-inch display ads were placed in 11 papers in five states outside Colorado where Colorado honey is marketed. These ads ran every two weeks for a four-month period. Free newspaper space was obtained by sending newspapers, stories about bees and honey. Food editors have expressed appreciation for information.

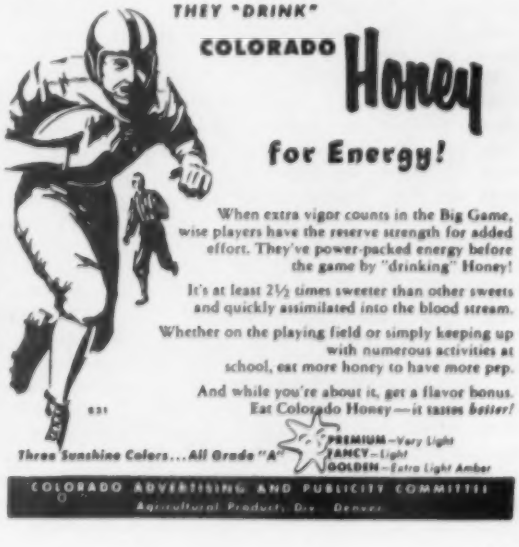
Magazines — Through Otto's efforts, the Colorado Grocer used a picture of children eating honey on the cover of their October issue in both 1952 and 1953. It carried notices of National Honey Month and gave suggestions to grocers on promoting honey. Recipes and honey stories are also sent to local farm magazines.

Schools — An educational exhibit including a display hive of live bees was prepared for showing in Denver schools. This is moved from school to school, teaches children about honey and pollination, and has proved very popular.

Booths and Displays—One of the highlights of the Denver National Western Livestock Show each January is a honey booth. Free samples of honey and biscuits or a five-pound jar of honey given by lot have attracted attention. Displays in bank windows in Denver and in super-

(Please turn to page 35)

The 1953-1954 winter ads emphasized the value of honey to those engaged in athletics and other energetic endeavors. Mountain climbers, skiers, ping-pong players, and people doing hard work were also shown in these ads. Ads like this ran every two weeks for a four-month period. Free newspaper space for stories and honey in recipes was also obtained.


THEY "DRINK"
COLORADO Honey
for Energy!
When extra vigor counts in the Big Game, wise players have the reserve strength for added effort. They've power-packed energy before the game by "drinking" Honey!
It's at least 2½ times sweeter than other sweets and quickly assimilated into the blood stream.
Whether on the playing field or simply keeping up with numerous activities at school, eat more honey to have more pep.
And while you're about it, get a flavor bonus. Eat Colorado Honey—it tastes better!
Three Sunshine Colors...All Grade "A"
PREMIUM—Very Light
FANCY—Light
GOLDEN—Extra Light Amber
COLORADO ADVERTISING AND PUBLICITY COMMITTEE
Agricultural Products, Div. Denver

Soil Conservation

In 1903-04 my parents moved to Gregory County, South Dakota. It was mostly one big pasture with springs, clear brooks, and fish ponds. By 1912, big plows were added to the battery of small plows. Overgrazing, overcutting, unprotected roadway ditches, all helped speed up runoff. By 1917, much of the soil started to go down the creek. Speeding up runoff, overgrazing, burning with fire and the use of chemicals have lowered the water-holding fiber of the soil. When it rains we have runaway water which takes soil and plants it in the Gulf of Mexico or carries it to the dams.

Wars are fought to gain or protect good productive land and clean productive streams. If we don't practice good soil stewardship to protect our food factory, and plant to tame runaway water and soil, keep the countryside green, streams clean, sky blue and air pure, we are sure to go in the red. A. G. Pastian, So. Dak.

Honey House Sanitation

A honey house is a factory where food is processed and packed and it should be built so that it can be kept clean with the least possible work. We must never forget that honey is a food, often consumed by babies and young children, and it should be free from any contamination.

The honey house should be a separate building to be used for nothing but the processing of food. The walls should be smooth and washable, the ceiling should be smooth and free from any projections. The floors should be smooth, preferably concrete or tile, and everything should be painted with a washable paint.

We believe, for the good of the honey industry, that the Government should enforce standards of sanitation for honey houses. We realize that the small beekeeper will claim that the large producers are trying to run him out of business. But we believe that problem can be met if the larger producer will do as we are doing. That is to extract the smaller beekeeper's honey for a nominal fee if he hasn't a suitable place. The general public has a right to expect that honey be handled in a sanitary manner. Let's not let them down. Let's keep our honey houses so that we can invite anyone in any time to see how our honey is handled. William Judd, Wisconsin

What to Do about Pesticide Damage

If your bees are damaged by spraying or application of pesticides I would not want to enter into a suit for damages unless I had chemical analyses to prove that a certain application or applications of a pesticide by some specific agency at a certain time caused the loss. I would want substantiating evidence of the wind and drift and of the flight of my bees in relation to the distribution of the poisons. I would want witnesses of the applications and of the direction and amounts of drift, as well as of the condition of my colonies prior to the applications and immediately afterwards. If these facts are presented to a conference of interested individuals and law enforcement agencies, regulations can be instituted which would prevent similar losses occurring in the future.

Difficulties in connection with use of pesticides can often be overcome by meetings of beekeepers, growers, chemical manufacturers, conservationists and public officials. From such meetings can come county and state legislation regulating pesticide use.

California beekeepers have suffered losses over the past 20 years from pesticides and in some cases have instituted court action. Our State Department of Agriculture and the County Agricultural Commissioners instituted regulatory controls that tended to confine the poisons to fields treated and to prevent application of dusts adjacent to fields that would be injured.

The advent of 2,4-D probably did more than any action by beekeepers or dairy interests to bring about regulatory control. It causes serious losses to cotton, clovers, melons, walnuts, tomatoes and other crops, thus emphasizing the need for adequate controls. County and state regulations, limiting types of poisons to be applied or setting forth the manner and time to apply them, have been made more strict. The increase in commercial application of pesticides has resulted in legislation to safeguard the interests of the grower and the public. Compulsory insurance, commercial licenses and special permits for applications have reduced promiscuous application of toxic substances.

J. E. Eckert, Apiculturist
California

Tips for Heating Honey

HERE'S a little tip that may save the commercial beekeeper and the hobbyist many a headache and valuable man hours in the extracting and processing of their honey.

The trick is the use of a lead-covered heating cable, a little smaller in diameter than a common lead pencil. Last summer, I installed an HS11040 cable set, made by General Electric, in the bottom of my Superior eight-frame extractor. This cable, designed to have a sheath temperature of not more than 165 degrees F., is sixty feet long and rated at 400 watts. I threaded it around so that it lay in the bottom of the extractor next to the wall of the tank where it would warm the honey as it was pumped out. This meant easier pumping through the long line to the strainers and settling tanks, and on cold mornings I had only to turn the set on before breakfast and when I came back the honey would be warm enough to pump and strain nicely.

We use three half-ton tanks set on steps with baffles so that the honey runs from one to another. We had used hot water coils in these tanks, but we replaced them with a heating cable set in each tank and none of our honey darkened and all graded water white or extra white.

I also use a heating cable set in the bottom of my cappings draining tank. We use a power knife and the cappings drop on trays that we slide down this long, narrow tank. The trays, made of a wooden frame with one-fourth inch hardware cloth nailed on the bottom, slide on two angle irons in this tank, making quick change of trays easy with no lifting. Previously, honey would drip down from the cappings and sugar before it could drain off. Now the heating cable gives enough heat to make it drain clean every night.

This season we plan to wrap a cable set around the pipe from the pump to the strainer so that it will warm up for easier straining.

The cost of electric heating here is 1½ cents per kilowatt hour and is very economical. Our electric bill for a whole season—lights, power and electric heating—was less than one dollar per ton of honey produced. There are also several models of low-cost plug-in thermostats made for these heating cable sets. We are going to try wintering bees with one of these cables and will install a thermostat control for it.

Ancel Goolsbey, Utah

R. B. Willson

The author is well qualified to report on Royal Jelly as he has been associated with the beekeeping industry for almost 40 years. As a young man he specialized in biological sciences and entomology and finally beekeeping at Cornell University where, after graduating and a short absence in the army during World War I and then at Mississippi State College, he returned to his Alma Mater where he was on the faculty in the biology department as a specialist in apiculture.

Since 1926 he has been in the honey business in New York and for the past nine years has been president of R. B. Willson, Inc., who specialize in the sale of bulk honey.

Mr. Willson is a director of the American Honey Institute, chairman of the Honey Utilization Committee of the American Beekeeping Federation, is vice chairman of the Honey Industry Council and President of the National Honey Packers and Dealers Association.

Royal Jelly: a Review

Part I --- The Scientific Aspects

Years ago, when Melampy was studying royal jelly, he sent this picture of dried jelly. What magic lies in its make up? We would all like to know.

Royal Jelly : a Review

Part 1 — The Scientific Aspects

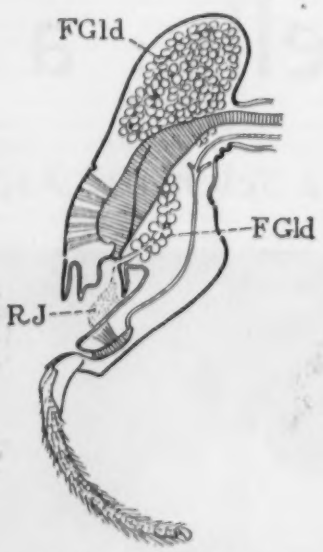
What is the mysterious magic locked in the food of the queen that creates a being so different from her sisters, the worker bees? There can be no doubt that royal jelly possesses properties that are awesome in their effect on honey bees.

THE honey industry had been going along its peaceful way through the first half of the Twentieth Century with nothing more exciting developing than the well-deserved recognition of the value of honey bees to agriculture through pollination, when the spotlight fell on royal jelly. Suddenly, this truly remarkable product of the bees came into public view both here and abroad by being the subject of many popular articles, by being used in industry and medicine, and by creating so much general attention as to reawaken interest at high levels for further research in the realm of pure science.

All this came about when, in several places in the world, it was thought that the wonder working properties of royal jelly, and they are just that — wonder working — might be carried on to the higher animals and thus become beneficial to man as well. This then is to review the subject in order to post the American beekeeper on developments to date so that if for no other reason he might talk about royal jelly with as much authority as the facts will permit. To say the very least it is a fascinating conversation piece, as is bound to be any subject that deals with sex and the prolongation of life.

The author asks the indulgence of the reader in the long briefing of the scientific material. However, no good understanding of the subject may be had without it. Keep in mind that we are dealing with an intriguing if not mysterious substance that has the power to change the life of a tiny insect from the humdrum of the life of an unsexed worker bee that will live only from 2 to 6 months to a beautiful, large, sexually perfect queen bee served constantly throughout her life by a retinue of attendants, and living instead for from 2 to 6 years. Also remember that it is this food exclusively that enables this queen to perform the incredible feat of laying more than her own weight in eggs in a single day, which she does sometimes day after day for prolonged periods. Thus we are treating with a substance whose influence on sex and the prolongation of life is unapproached for performance by anything else known in the annual world.

The Nature of Royal Jelly



Glands of the head and thorax of a worker bee (From "The Hive and the Honey Bee" as described by Snodgrass.) FGld, the food glands of the right side in the head that produce royal jelly. RJ, the actual royal jelly ready for use.

The scientific literature on royal jelly is not voluminous, nor yet is it merely sketchy. Some good solid work has been done on the subject, most of it just preceding World War II, with much less of the scientific since. In developing the scientific aspects of royal jelly, we shall cite these sources more or less in chronological order. Because of the limitation of space, all technical terms used have not been defined. This is unessential nevertheless to a good understanding of royal jelly. Read the article through and if we have done what we have tried to do, you will have an up-to-date comprehension of this challenging subject that has been causing more discussion than anything since Vergil's IV Georgics or Napoleon's ordering of the honey bee as a symbol of his anticipated dynasty.

As every beekeeper knows, royal jelly is the food fed queen bees throughout their lives by the young (3 to 10-day old) worker bees called nurse bees. All baby (larval) bees whether workers, drones or queens, are fed royal jelly in their earliest days and although considerable analytical work has been done on the composition of this food, the results of different scientific workers vary to a point where it is difficult to draw definite conclusions. At least it is not certain that it is chemical changes in the composition of the food that is fed queen bees in the advancing days of their larval lives that bring about the change from the worker bee type of female to the queen bee type. Let us review that, along with the origin of royal jelly.

A. von Planta[1] (see reference list at end), German scientist of the last century, like Schönfeld before him, believed royal jelly to be a regurgitated product with honey and pollen added proportionately to the larval food of their stomachs in accordance with the function the different castes were to perform. He claimed distinct changes in the chemical composition between the food fed queen larvae on the one hand, and workers and drone larvae on the other, after their fourth day.

It was J. Langer,[2] also a German scientist, who in 1912 proved conclusively that royal jelly is a secretion of the pharyngeal glands, a set

of highly specialized glands in the heads of the worker bees. From this we may conclude that it is similar in origin to the milk of mammals, also a glandular secretion, and so it may be thought of and called the "milk" of honey bees.

No work of note on chemical analysis of the larval food of honey bees was done then until 1922 when A. Kohler,[3] a German woman scientist, checked on von Planta's work, questioning the assumption that the food of worker and drone larvae over four days old is changed because, in the light of Langer's discovery, even if honey bees could recognize the age of larvae, it seemed doubtful to her that they could change the composition of the secretion of their glands, i.e., voluntarily. She found that the fat and carbohydrate content of the food of drone and worker larvae under 4 days of age was the same and that after 4 days each received an admixture of pollen and honey in their food, changing it considerably. The mechanical mixture of honey and pollen from the stomachs of the nurse bees, added to the royal jelly or milk of the pharyngeal glands, of course explained the difference.

Then in 1924, two well-known American scientists in the field of honey bees—Nelson and Sturtevant,[4] found that changes in the diet of the worker larvae take place as early as the third day, undigested pollen grains being found regularly in their food at that age, indicating, of course, that it was no longer merely a glandular secretion, else no pollen grains would appear.

It was another German worker, E. Elser,[5] who in 1929 published the results of his fine research, the most significant part of which is reproduced here in Table I.

Both worker and queen know the delights of royal jelly. But the poor worker gets only a small dish, while the queen feeds all her baby days on "food fit for the Gods."

by von Planta and Kohler in the case of drone and worker larvae. Elser always found pollen grains in the food of queen larvae, broken and unbroken, and in the same amount quantitatively. He was of the opinion that pollen was added mechanically.

By the determination of the pH of royal jelly, Elser added further proof of the origin of this product since it has a decidedly different pH than the contents of the stomach (pH is the chemist's term to indicate the degree of acidity or alkalinity in a substance. Number 7 is neutral. Below 7 is acid; above alkaline. Royal jelly has about the same degree of acidity as honey).

Haydak,[6] that is, our good friend, Professor Mykola H. Haydak of the Division of Entomology and Economic Zoology at the University of Minnesota, has reviewed all of the foregoing and comments on Elser's

-Percentage composition of food of queen larvae (fresh matter).

Age	Weight of Larvae	Weight of Food	Moisture	Dry Matter	Protein	Fat	Invert	pH
2 days	2.0 mg.	20.0 mg.	50.7	49.3	18.9	8.6	11.2	4.6
3	4.3	148.3	58.7	41.3	10.4	4.9	8.3	4.8
4	23.1	288.2	64.8	37.2	10.1	6.0	9.5	4.7
5	91.3	307.0	65.6	34.4	9.4	4.2	11.2	4.8
6	148.7	296.8	62.2	37.8	9.0	4.3	10.4	4.8
7	295.5	584.6	56.3	43.7	10.6	2.6	13.6	4.1

Table I. By E. Elser (from Journal of Economic Entomology, vol. 36 (5): 775)

This table shows a marked decrease in the percentage of proteins and fats after the second day, but an increase in the percentage of invert sugar after the fourth day, both observations having been made

work: "Apparently the amount of nutrients in the larval food per volume intake was lower in over 2-day old larvae than in the younger larvae." By larval food Haydak means the food of worker larvae, not queen larvae, a significant conclusion from Elser's work in terms of royal jelly and is corroborated by the work of Melampy and Willis[7] at Louisiana State University in 1939 when they published their paper on metabolism of the honey bee larva which showed the greatest rate of growth per gram of insect tissue to be in larvae of both female castes under 3 days of age.

This work of Elser, along with the work of Melampy and Willis, tends to substantiate the insistence of Wulfrath and Specht, contemporary large-scale commercial honey producers of Mexico, that only royal jelly taken from cells containing larvae no more than 2 days old should be used in medicine for human beings, this belief having been picked up by them from the popular European literature of recent years, and stoutly defended by them from the results they maintain they have obtained.

Melampy, now working with a worker by the name of Jones,[8] still at Louisiana State University, made a chemical analysis and vitamin content of royal jelly taken from around 3 and 4-day old larvae, showing it to be of **uniform chemical composition** and containing an average of 66.05% water and 39.95% dry matter made up of 12.34% protein, 5.46% fat, 12.49% reducing substance (carbohydrates), 0.82% ash, and 2.84% undetermined matter. Only eight samples were used. It is this writer's opinion, having purchased and handled relatively large quantities of royal jelly during this past year and certainly without

questioning the accuracy of those few analyses, that royal jelly taken from many apiaries in widely different locations over periods of eight to ten months will show striking variations in moisture, at least, if not in its other component parts. It definitely varies in color from a bright creamy almost canary yellow to a muddy unattractive dirty grey, which may or may not be indicative of chemical variations.

Incidentally, royal jelly has a slightly pungent aroma and has a taste like cheese.

Melampy and Jones,[8] in their findings of the vitamin content of royal jelly, concluded it had little if any Vitamin A or C, and cited the work of others, including Eckert of California, and Haydak, disproving it as a source of the then recently isolated so-called sex vitamin E that royal jelly was at first thought to contain because of the remarkable reproductive processes of the queen bee. The absence of Vitamin E is not to be confused with the sex active hormones others found strongly present. They did find it to be a rich source of the vitamin B complex containing from 1 to 1.5 international units per gram. There will be more on vitamins later.

At about this time, something happened in which I think beekeepers can take great pride. Living in Toronto, Canada, and head of a fine research laboratory given in his honor by the people of Canada in recognition of his truly great contribution to humanity in the discovery of insulin, Dr. Frederick A. Banting became curious about royal jelly. He requested two of his young staff members, my friend Gordon Frederick Townsend, and Colin Cameron Lucas, to do a basic fractional analysis of royal jelly. They went to work and published their results[9] in June, 1940, separating the component parts under this method of analysis with four fractions for royal jelly found in queen cells bearing larvae 2-3 days old, and having a moisture content of from 45 to 65% moisture but reduced to a dry basis before analysis. They were as follows:

Ether soluble Fraction I (10-15% of the dried royal jelly) contained 4-10% phenols, 80-85% unidentified acids, 5-6% sterols and glycerids, 5 to 6% wax and 0.4 to 0.8% phospholipids.

Water soluble and dialysable Fraction II (about 55% of the dried royal jelly) contained 1.2% nitrogen, 3.4% ash and about 50% reducing sugars (52% levulose, 42% dextrose and 6% non-fermentable matter) and about 20% of the fraction consisted of an unidentified acid.

Water soluble non-dialysable Fraction III (15-20% of the total dry matter) was found to contain 0.5% ash, 14.9% nitrogen, 0.3% phosphorus and 0.89% sulphur. A number of common amino acids were found present.

Water insoluble protein Fraction IV (15% of the dried solid matter) contained 13.4% nitrogen and 0.16% phosphorus and a trace of sulphur.

To emphasize the unknown in royal jelly, the bold face above are this author's.

In connection with the matter of royal jelly protein it should be pointed out that Melampy and Jones[8] had determined that it had a biological value for digestion of 75% as compared with beef protein of 69 to 77%. Abbott and French[10] (Dr. Abbott still maintains her interest in royal jelly) performed tests at the Florida Agricultural Experiment Station to indicate a third of the protein of royal jelly is globulin and two-thirds are albumin.

Returning to the work of Townsend and Lucas, they cited in their published work[9] the experiments of Heyl,[11] who in 1939 experimented with 21-day old rats, injecting into them a dilute sodium hydroxide extract, or an aqueous pyridine (a coal tar derivative) extract of royal jelly in amounts equivalent to from 60 to 700 milligrams of the natural substance, finding a precocious follicular development of the ovaries, directly in proportion to the amount of royal jelly injected. This, of course, is strong evidence of the presence of a sex hormone. The sex activity being in direct proportion to the amount used could have important bearing on any human application.

Townsend and Lucas themselves fed to fruit flies (Drosophila) the ether soluble fraction of royal jelly (the one with 80 to 85% unidentified acids) and brought about much earlier sexual maturity, and stimulated egg laying by about 60%. This, of course, is another strong indication of the presence of a gonadotropic (sex) hormone in royal jelly.

Abbott and French,[10] a bit earlier, had demonstrated the presence of a sex hormone in royal jelly in an experiment with spayed rats.

Haydak,[6] who from his studies and published work of his own research, must be considered our leading authority on royal jelly, has reviewed the foregoing references with great thoroughness and goes on to report the results of his experiments (see Table II) on "larval food and the development of castes in the honey bee" which is the title of his paper. Because of the completeness of his review of the literature up to 1943 and the thoroughness of his own work, now that royal jelly has taken on new significance, it is to be hoped that a fresh supply of reprints of that paper will be made available.

Haydak therein reviews in profound scientific terminology his thesis that it is not some mysterious substance added to their food that causes some larvae to develop into queens rather than worker bees, but

–Chemical composition of the larval food of female honeybees.

Age of Larvae Days	Moisture	Dry Matter	Nitrogen	Protein N×6.25	Fat	Ash	pH
			Per cent in fresh matter				
Royal jelly							
1	65.37	34.63	2.24	14.00	2.63	1.19	4.15
2	69.17	30.83	2.41	15.06	1.73	0.91	4.10
3	69.88	30.12	2.44	15.25	4.86	0.79	4.90
4	69.70	30.30	2.24	14.00	5.68	0.70	4.15
5	67.58	32.42	2.58	16.13	4.92	0.76	4.19
Sealed	68.92	31.08	2.94	18.38	3.90	0.75	4.15
Larval food of workers							
1–2	73.51	26.49	3.32	20.75	4.69	1.07	4.00
3–5	64.90	35.10	2.83	17.69	2.06	0.36	3.90
			Per cent in dry matter				
Royal jelly							
1			6.47	40.43	7.59	3.34	
2			7.82	48.85	5.61	2.95	
3			8.10	50.63	16.13	2.63	
4			7.39	46.20	18.74	2.31	
5			7.93	49.75	15.18	2.34	
Sealed			9.28	58.01	12.39	2.37	
Larval food of workers							
1–2			12.53	78.33	17.70	4.04	
3–5			8.06	50.39	5.87	1.65	

Table II. By Haydak (Reference 6). Reprinted Nov. 30, 1943 from the Journal of Economic Entomology 36: (5):778.

rather is due to the "amount of essential nutrients consumed by the queen and worker larvae" that brings about the change. Worker larvae are by comparison with queen larvae somewhat starved and "in spite of the basic similarity between the queen and the worker, there is a critical period for the worker around the second day of its life." He cites other workers who showed the physiological and anatomical changes starting to take place internally within the 2-day old abundantly fed queen larvae, first manifest in the growth of the ovaries and then the lack of development of the pharyngeal glands for which queen bees have no use, and as pupation begins the other changes in the pollen baskets, the sting and mandibles. He concludes that because of the abundant feeding of the queen larvae, a hormone (or hormones) is secreted by these early and fully developed ovaries in sufficient quantities to bring about those changes which characterize the queen.

We have amongst us many who would belittle royal jelly. Here is another property of this wonder-working substance that defies belittling. We have reviewed the chemical nature of royal jelly. For general analysis it may be said to be about 65% moisture, 12½% protein, 12½% carboyhdrate, 6% fat and 4% undetermined matter. Any substance of this gross analysis, exposed to the atmosphere inside a beehive where the temperature is usually from 90 to 95° F. and the humidity very high, should spoil. Royal jelly does not spoil. Why? McCleskey and Melampy,[12] the latter a great contributor to our knowledge of royal jelly, solved this mystery for us with an excellent piece of work back in 1939. They made cultures of four bacteria: Staphylococcus aurens, Eberthella typhosa (Rawlins strain), Escherichia coli and Bacillus metiens. The strain of the first named organism is the one used by the U. S. Food and Drug Administration for testing antiseptics and disinfectants, and the medium for the cultures that which is specified by the same organization.

In the inoculations of equal proportions of royal jelly to bacterial broth, all bacteria were dead in one minute (E. typhosa and E. coli in 15 seconds) and when royal jelly was reduced to one part to ten parts of the culture, all bacteria of all groups were dead in 30 minutes. The authors commented that this is considerably more powerful than some common carbolic acid compounds that are used for antiseptic purposes. They made an extract of this bactericidal factor of royal jelly from which they secured crystals that appeared to have the germicidal property.

More on Vitamins

A bit more on the vitamin content of royal jelly should be added. Here again we are indebted to Dr. Haydak and in this instance to his associate at the University of Minnesota, A. Earl Vivino, for a thorough going review of the work of others and their own fine contribution as a result of painstaking scientific work.[13] They cite the work of Pearson and Burgin[14] in 1941 who found royal jelly to be the most concentrated source yet discovered of pantothenic acid, one of the great B complex vitamins and, significant to our study, the one associated with prolongation of life.

They cite the assays of Cheldelin and Williams[15] for the B vitamins in royal jelly, Table III, and then go on to list their own findings, recording the variations in the several B vitamins in royal jelly and larval food according to the ages of queen and worker larvae—Table IV.

The authors ascribe the low thiamine content of their results compared to that found by other workers, such as listed in Table III, to the variation in the composition of different pollens on which the bees feed but do not attempt to explain why their findings differ so with that of other workers for riboflavin, niacin and pantothenic acid content of royal jelly. They do explain the high concentration of vitamins in the food of the very young larvae, both queen and worker, by stating that it is the older nurse bees—6 to 10 days old—that feed the very young

B Vitamins of Royal Jelly (Micrograms per Gram)
(Cheldelin & Williams)

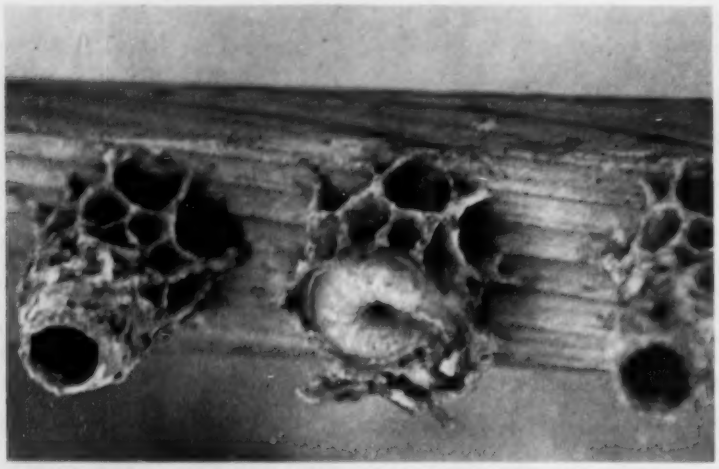
	Thiamine	Ribo-flavin	Pyridoxin	Niacin	Panto-thenic acid	Biotin	Inositol	Folic acid
Fresh	6.6	8.2	2.4	59	89	1.7	100	0.20
Dry	21.0	26.0	7.7	190	290	5.4	319	0.62
Max.-Min. (fresh)	7.4-5.6	10.0-6.6	2.8-2.2	47-73	110-68	1.8-1.6	150-78	0.23-0.16

Table III. Cheldelin and Williams. (reference 15) From the University of Texas Publication 4237: 105-24.

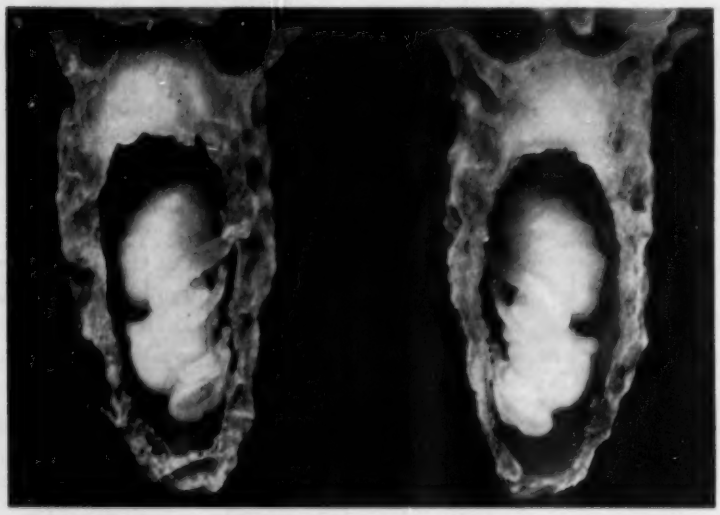
Vitamin Content of Larval Food (Micrograms per Gram)

Age of Larvae	Moisture	Dry Matter	Fresh Basis				Dry Basis			
			Thiamine	Riboflavin	Niacin	Pantothenic Acid	Thiamine	Riboflavin	Niacin	Pantothenic Acid
Queen. *Royal Jelly*										
1	65.37	34.63	1.3	8.3	140	200	3.6	24.0	430	578
2	69.17	30.83	1.2	6.1	101	180	4.0	19.8	327	583
3	69.88	30.12	1.2	5.9	91	194	4.0	19.7	302	644
4	69.70	30.30	1.2	5.6	91	166	3.9	18.6	300	647
5	67.58	32.42	1.2	5.3	99	173	3.6	19.6	305	530
Sealed	68.32	31.68	1.2	7.0	98	160	3.8	22.1	310	506
Royal Jelly (combined results)										
1-2	66.77	33.73	1.2	7.2	125	190	3.8	21.9	379	581
3-5	69.05	30.95	1.2	6.0	94	188	3.9	19.3	302	610
Worker. *Larval food*										
1-2	73.51	26.49	1.3	11.7	160	147	4.9	44.1	377	554
3-5	64.90	35.10	1.2	10.8	52	30	3.4	30.8	148	57
Pollen (Vivino and Palmer, 1944)			9.3	18.5	200	27.6	11.8	23.5	254	35.1
Worker larvae (1- to 3-day old) (Haydak & Vivino, 1943)			4.6	22.2	77.3	180.2	29.9	101.3	260.6	916.1

Table IV. Haydak and Vivino. (reference 13) Reprinted from the Annals of the Entomological Society of America, Vol. 43, No. 3, Sept. 1950.



This queen bee larva (center) is literally swimming in her bed of jelly, so she can be "hoggish" about it and soak up all she wants. (Photo by John C. Hogg, Tifton, Ga.)



Finally, when the pupae of the new queens have finished with their sumptuous banquet there is still plenty left at the bottom of the cells. (Photo by J. E. Eckert, California)

and have by then developed a high degree of efficiency, whereas it is the very young nurse bees, 3 to 5 days old, still developing, which feed the older larvae. The high degree of all of the B vitamins in the royal jelly of very young larvae lends more substance to the argument of Wulfrath and Specht about royal jelly from larvae not over 2 days of age as being richest and most valuable.

The striking thing about the findings of Haydak and Vivino is the sharp drop in the vitamin content of the food of the older worker larvae, i.e., after 2 days old, especially niacin, 48%, and pantothenic acid, 86%, on fresh material basis. To this writer, that constitutes a mystery because it is inconceivable to him that nurse bees can voluntarily, with the only food they have — honey and pollen and water — selectively reduce niacin and pantothenic acid and leave thiamine concentration alone.

That pantothenic acid is the longevity factor of the B complex was mentioned before. Its high concentration in royal jelly may explain the long life of the queen bee. The lack of any appreciable amounts of it in the larval food of the workers after 2 days of age may explain in part their short lives.

Gardner,[16] a biologist well known for his contributions to the science of gerontology (the science of aging) found royal jelly to be a longevity factor when fed Drosophila (fruit flies) and increased their life span when pantothenic acid was added to their diet by 46.5%.

In concluding the review of the strictly scientific work let us point out in the transition to the non-scientific developments that it has been established that royal jelly

1) is a glandular secretion, the "milk" of honey bees

2) although of variable moisture, and apparently of different vitamin content for larvae of different ages, is fairly uniform in its gross composition

3) has a sex factor of demonstrated effectiveness on certain mammals as well as on other insects besides the honey bee

4) has a longevity factor also of demonstrated effectiveness on certain mammals and insects.

Part II of this article will be concerned with the practical applications of royal jelly, including its production, the care of the product, and the application thus far of this remarkable apiarian product in industry and in medicine.

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(Reprints of this article, or any article in this educational series, may be obtained from American Bee Journal for 10c each.)

● Nosema Disease —

(Continued from page 12)

Agriculture estimated in 1946 that over half of queen losses in package bees that year were due to nosema disease.

The disease appears to be most severe in early spring or in late fall. Both White in the United States and Winkel in Germany note that when no more than 10 per cent of the bees are infected early in the spring, the colony usually recovered with little evidence of the disease remaining by midsummer. When half the bees were infected, brood production was seriously handicapped and some of the colonies would die. When more than half the bees were infected, the colony would almost certainly die. Winter losses from nosema have not been fully recognized in this country; but in Europe, Hammer and Karmo place winter losses at 20-80 per cent in nosema infected bees.

Effect on Honey Production

Nosema disease, or any other condition which causes reduced brood production with resulting weak colonies, will cut honey production. In one of the few attempts to measure the cost of nosema disease in terms of lost honey production, Farrar in 1947 found that in heavily infected colonies honey production was off as much as 28 to 111 pounds. Apparently this does not include the losses from less heavily infected colonies on the one hand or those resulting from death of colonies on the other hand. Furthermore, it does not include such items as the actual replacement of the queen.

Can Nosema Disease Be Recognized?

Unfortunately, the only way the disease can be recognized before it seriously affects the health of the bee is by microscopic examination of some of the bees. Spring dwindling, abnormal queen supersedure, and unusual winter losses should lead the beekeeper to suspect nosema. Crawling bees or poor brood production in the absence of foulbrood or sac brood should add weight to this suspicion. The examination of dead or dying bees will reveal to the experienced man the enlarged, chalk-white or light yellow stomach without any muscular constrictions in the heavily infected worker in contrast to the dark yellow or brown stomach with its well marked muscular constrictions in the normal bee.

How to Control And Prevent Nosema

Until recently, there has been no specific treatment for nosema disease. In 1952 Katznelson and Jamieson in Canada found that an antibiotic, fumagillin, was effective in the prevention of the disease. Farrar and others, in addition to these workers, have continued the study of the antibiotic against nosema. It was not until late in the spring of 1954, when a suitable preparation of fumagillin was developed, that it became available to the beekeeper. Experience since last spring indicates that less of this antibiotic is needed than was originally believed. A soluble salt is available to the beekeeper under the trade name Fumidil B. On the advice of experts from the U. S. Department of Agriculture and the Canadian Department of Agriculture, it is now recommended that Fumidil B be fed for the control of nosema disease at the rate of 75 to 100 mg. per gallon of 2 to 1 sugar sirup.

One gallon of this medicated sirup is sufficient for the protection from nosema disease of a colony newly established from a package.

For larger over-wintered colonies at least two gallons should be fed.

The treatment of package-producing colonies and queen nuclei needs further study, but experienced beekeepers recommend that the medicated sirup be fed to package-producing colonies for a month before shaking and to queen nuclei throughout the production period.

WATCH FOR THE FEBRUARY ISSUE OF THIS JOURNAL. MORE ABOUT FUMIDIL B AND NOSEMA DISEASE.

Stephen Succeeds Scullen in Washington State

Dr. H. A. Scullen

Dr. W. P. Stephen

Herman A. Scullen, since 1921 Professor of Apiculture and Entomology at Oregon State College (Corvallis), retired in July, 1953. Moving from Wisconsin to Oregon in 1901, he became an instructor in the Junction City High School; later instructor in Zoology at Iowa State; then Special Field Agent (U.S.D.A.), Washington State. He moved to Corvallis to go into commercial beekeeping but was called to the College until retirement.

William P. Stephen, from the University of Manitoba (1948); Iowa State College (1949); and the University of Kansas (1951); succeeds Dr. Scullen at State. He is trained in Entomology, Chemistry, Apiculture, Plant Pathology, and Botany. In Brandon, Manitoba, he was employed in legume pollination research. At present he is investigating the pollination of tree fruits, as well as legume crops, (mainly pear and alfalfa).

Honey is Kind to Your Heart

No. 5

by D. C. Jarvis, M. D.

YOUR heart pumps out your blood. Your system of arteries distributes the blood in your body. The transfer of food and oxygen from your blood to the fluid called lymph which bathes your body cells takes place in the tiny blood vessels called capillaries. The walls of these tiny capillaries are porous like blotting paper which allows ink to pass through it. Through the porous walls of these tiny capillaries the fluid part of your blood containing food for the cells of your body passes to form the lymph which bathes each body cell. This lymph brings to each body cell the food material and oxygen it needs to carry on its vital activity which is the making of heat, energy and a number of acids. If this fluid coming to each body cell is acceptable to the cell it will accept it but if it does not contain that which the cell is able to use the cell rejects it and the heart must strengthen its beat in order to rush more lymph to the cell which it demands in order to do its vital work.

This failure of yours to provide in your daily food intake that which each cell of your body needs and can use puts more work on your heart. If you would take honey each day with the natural sugars, vitamins and minerals it contains you would make sure of having a fluid that each body cell would accept. The cells of your body represent the soil of your body. Sometimes because of a poor daily food intake that does not give the body cells each day the food material they need this body soil represented by your body cells runs out like farm or garden soil runs out and needs rebuilding.

Every cell in your body will be in a fit condition to do its job satisfactorily just as long as it is supplied with the proper quantity and quality of food material and oxygen and just as long as its waste products are promptly removed. Every cell in your body lives in a liquid medium and is surrounded by fluid. This means that fluid is always passing between individual cells. It means that no two cells are in such close contact as to make this passage or flow impossible. Every cell selects from out of the fluid which surrounds it the food and oxygen it needs to support cell life. Every cell secretes back into the surrounding fluid all of the waste produced by its vital activity. The fluid between the cells must be kept constantly flowing. If this flow should stop the cells might languish and perhaps die not only from lack of proper food and oxygen but also because they would be surrounded by their own poisonous waste materials.

You use thought and care in providing suitable plant food for the plants and rose bushes that grow in your garden. Just as much thought and care are needed in providing suitable food for your body cells which also grow and multiply. You can be kind to your heart if you eat honey each day. By doing so you will be sure each cell in your body receives the food it needs to do its work. By eating honey each day you make sure the fluid that reaches each cell will continue to move at its normal speed and doing so will make it unnecessary for the heart to increase the strength of its beat in order to overcome the resistance furnished by a slow moving tissue fluid. Honey is kind to your heart in so many ways that eating it each day pays big dividends in better heart performance.

Vermont

Recipes---

HONEY DATE BARS

2 eggs
¾ cup honey
½ cup sifted flour
1 teaspoon baking powder
¼ teaspoon salt
½ cup Kellogg's All-Bran
1 cup chopped dates
½ cup chopped nutmeats

Beat eggs until thick; beat in honey, a little at a time. Sift together flour, baking powder and salt; stir in All-Bran, dates and nutmeats. Add to first mixture and beat well. Spread batter in greased shallow 9 x 9 inch pan. Bake in preheated moderate oven (375° F.) about 25 minutes. Cut into bars while warm and sprinkle with powdered sugar. If desired, serve as a pudding with whipped cream. Yield: 18 bars 3 x 1½".

—Mrs. Regina Frisbie

† † †

HONEY BREAD PUDDING

1½ cups day-old-bread cubes
¼ cup liquid honey
2 tablespoons butter or margarine
½ teaspoon salt
2 eggs, beaten
½ teaspoon vanilla
1½ cups hot milk

Place the bread cubes in a small baking dish.

Combine the honey, butter or margarine, salt, eggs, and vanilla. Slowly stir in the milk. Pour the mixture over the bread.

Set the baking dish in a pan of hot water and bake at 350° F. (moderate oven) for 30 to 40 minutes or until pudding is set.

Four ⅔-cup servings.

(Taken from "Honey—Some Ways to Use It"—USDA Home and Garden Bulletin No. 37.)

SPICED HONEY COOKIES

½ cup butter
½ cup sugar
½ cup honey
2 eggs, beaten
1 teaspoon almond extract
2½ cups flour
2 teaspoons baking powder
½ teaspoon salt
½ teaspoon nutmeg
1 teaspoon cinnamon
½ teaspoon cloves
1 cup nutmeats

Cream butter and sugar, add egg, honey, almond extract and spices. Add sifted dry ingredients. Drop by teaspoonful on a greased cookie sheet and bake 12 minutes in a 325° F. oven.

—Mrs. Esther Saeger

(Taken from Michigan Beekeeping News.)

† † †

LEBKUCHEN

2 cups sugar
4 eggs
⅔ cup strained honey
1½ cups unblanched almonds (or other chopped nuts)
5 cups flour
½ teaspoon soda
1 teaspoon cinnamon
½ teaspoon allspice
1 teaspoon cloves
¾ cup chopped orange peel
¼ cup chopped lemon peel
7 ounce package dates, cut

Beat eggs until light, add sugar gradually and continue beating until mixture is light and fluffy. Add the honey, then the almonds which have been cut into long thin strips. Mix the chopped peel with the dry ingredients which have been sifted together. Combine the 2 mixtures and if time permits, chill thoroughly. Spread dough on a greased baking sheet about one-half inch thick, and bake in a moderate oven 350° F. for about 30 minutes. Remove the cake to a rack or a sheet of waxed paper and spread while still hot with a glaze of powdered sugar mixed to spreading consistency with lemon juice. Sprinkle with colored non-pareils. When cool, cut into squares or strips. These cookies improve with age. Store in tight container.

—Miss Helen Greenwood

Recipes which have been tested and found good by our readers will be welcomed for use on this page.

Pellett Clover Inoculated

by Melvin Pellett

A SATISFACTORY nitrogen-fixing bacteria for use with **Trifolium ambiguum** clover is reported introduced from southeastern Europe by United States Department of Agriculture scientists.

Trifolium ambiguum or Pellett Clover, also known as Kura Clover, Honey Clover and Deer Clover, gained wide recognition through the American Bee Journal Honey Plant Test Gardens and was extensively featured in this publication eight to ten years ago. This clover, with entirely different habit of growth from clovers in common cultivation, spreads rapidly by underground rhizomes. It develops a most heavy root system and appears promising for use in erosion control as well as forage in situations where a legume of a permanent nature is desired.

Pellett Clover gained a wide interest in the 1940's and brought about a great deal of research on the part of soil bacteriologists in the hope of finding a suitable inoculant. However, any of the cultures used with other legumes in this country seemed to be of little or no benefit to this particular species. Lacking the nitrogen-fixing qualities, this clover has remained in the experimental stage. But now with the coming of the required inoculant, we are confident it will have a great future, or at least it has possibilities.

Pellett Clover.

Winter Bird Feed in the Test Gardens

Since we are of the opinion that greater emphasis should be given to honey plants in wildlife conservation programs, it is timely in early winter to take a look around to note what some of our best honey plants carry in the way of winter bird feed.

There are many of the small fruits clinging to the bushes of Cotoneaster, especially varieties **acutifolia** and **divaricata.** Many seeds stay on our Vitex incisa negundo through much of the winter. We wish we knew more in detail about the use made by birds of Cotoneaster and Vitex, some varieties of both are tops as honey plants; although I expect we may assume that most any kind of seeds or berries holding to the bushes will be potential feed for some kinds of wildlife. The Russian Olive trees have many berries. The Buffalo Berry has no berries left—we suspect this is a preferred food which the birds eat early. Of the shrubby lespedezas, **Bicolor** and **Cyrtobotra** have matured some seed this year and there is more on the earlier maturing strains of Japonica. We find it is only some seasons these varieties will mature their seed this far north. The heavily matted growth of Wagner Flat Pea is so far holding a considerable amount of the seed pods. The bright red berries of our native Bittersweet cling to the vines until eaten by birds, unless they are removed by people for winter bouquet material.

This mentions only a few of the large number of good honey plants which have apparent potential use in wildlife plantings.

Preparing Honey for Market

by Arthur W. Kehl

Four flavor packs by Lyons.

THE preparation of honey for market is a subject on which entire books could and should have been written. What little thought I can inject regarding this tremendous subject will be slanted entirely toward my own personal, pet ideas.

In order to prepare any product for market it is of vital importance that a thorough study be made of the desires of the persons who constitute that market. In other words, what do honey buyers want? I am convinced that the great majority of grading rules and regulations of our country have been established at the request of the beekeeper for his convenience with all too little thought being given to helping the shopper get what he or she wants.

In my own family we use a considerable quantity of honey and yet, on occasion, the children desire some other type of spread for their bread. Recently our supply of homemade jams and jellies was exhausted and pressure was put on me to bring home from the store some jam and jelly. Foolishly I did not inquire what flavor and when going into the store I found many flavors under many different labels. So much in fact that before I knew it I had picked up four different glasses of jelly to take home. It is my belief that honey marketed by the flavor rather than color would come more nearly meeting the desires of the buying public and would, therefore, increase honey consumption.

The various labels under which processed cheese is marketed is another example of how flavor labeling can increase consumption of a basic product.

There are two other types of honey other than extracted which I would like to see promoted to a much greater extent. Granulated or creamed honey does a great deal to eliminate the problem of sticky children. Chunk honey is particularly appealing to the older people who recall the delicious combs of their childhood days.

Well do I appreciate that marketing the honey crop in these three ways, by flavor, by granulation and in chunk packages means more work for the beekeeper, but the American public is not only willing, but anxious to pay for extra services on products that are presented to them in the manner that is most convenient and attractive. Wisconsin

Ohio's First Honey Queen

The Ohio Association held three one-day meetings over the state. At each one a regional "Honey Queen" and a runner up were selected. The Queens, daughters of beekeepers, were chosen for beauty, personality and ability. These regional selections then competed for final state honor and Carol Ann Snider, 17, of Canton was the state winner. Here she is with H. R. Swisher, Springfield, president of the Association. During Honey Week Miss Snider toured the state, with television and radio appearances in Cleveland, Columbus, Dayton, Springfield, Findley and Toledo. This plan offers great possibilities for publicity at a minimum of financial outlay.

Perfume of Death . . .

The Tiger beetle of the tropics exudes the fragrance of attar of roses—attracting bees which it devours. Source—(Detroit Times, Detroit, Michigan, by Riley, Aug. 15, 1954—from Art White, Jackson, Mich.)

New Bee Book from Maine

Geo. S. Graffam, a native of Maine, has written a very pleasant book about bees, "The Fragrant City of Wax." Nicely illustrated and accurately correct, the book is most interestingly written. A guided tour of the bee hive, it is written so as to be interesting to the young folks.

Privately printed, this book of 112 pages is available from the author at Whitefield, Maine for $2.20. We have stocked a few copies at Hamilton for the convenience of our subscribers.

Legume Seed Harvest . . .

Generally, legume seeds were higher this fall than they were a year ago. In most cases the price, however, was not as high as the ten-year averages. White clover is the exception, being quoted at $69.50 as against the ten-year average of $63.48 per hundred. (Data from the Crop Reporting Board of U.S.D.A.)

The acreage of alfalfa ran 10% over 1953. Red clover was 50% under last year. The pounds per acre is only two pounds lower than in 1953.

Something Extra From the Flowers . . .

Beekeeping members of one of the flower societies in Washington, D. C., thought up a good way to combine honey publicity with flower displays. A honey exhibit bore the legend "Something Extra from the Flowers." It created considerable interest and proved to be a clever scheme to call attention to honey.

You Asked for It . . .

L. Youngquist, North Branch, Minn.

Do I have to destroy a colony bought last spring which the Inspector claims has A.F.B.? These bees were originally inspected and guaranteed in the nuc hive where I bought them.

Most states have compulsory bee inspection, and where this exists, naturally it is the best policy to abide by the law. If you are not familiar with your State bee law, I suggest you write your State Capitol for information.

Your bees may have been free from disease in the spring, but that doesn't mean that they necessarily would be this fall. Bees in trees, buildings, or from some other apiary within flying distance of your bees may have had disease and either died out or became so weakened down your bees robbed out the honey, thus transferring the disease to your colony.

Norman E. Cooper, Winchester, Va.

In his article, "Painless Requeening," in August, 1953, does Mr. Hinches mean that we place at least three frames that have brood started above the newspaper and that they will develop queen cells if fed sirup? Would the colony produce a queen on its own if its queen is first destroyed? By the Hinches method, does the beekeeper leave it to them to unite, and does he not destroy the old queen, if he succeeds in raising a queen above?

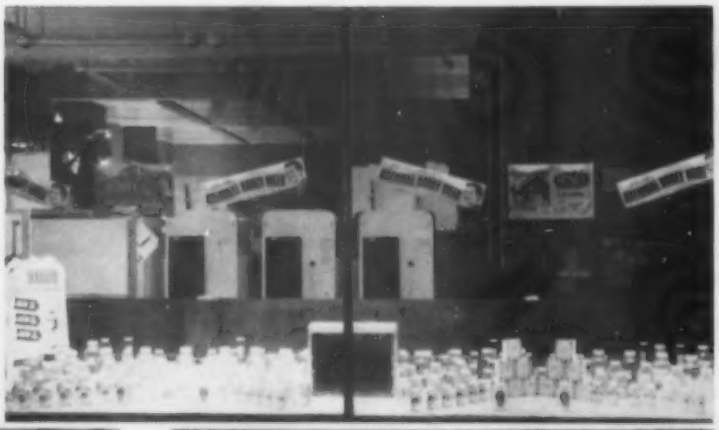
The method of requeening recommended in the article "Painless Requeening" has nothing to do with raising queens. Make the queen nucs any way that you like; buy the queens or raise them yourself. A good time to make the nucs is during the fall flow if you buy the queens.

I would not recommend raising the queens in nucs over the colonies to be requeened. This could be done but I do not think that it is necessary to go to all that bother.

One advantage of requeening this way is that the old queen does not have to be found. It is remarkable how certain the new queen is to survive when a young queen is given at the end of the year's work. Remember that the nuc is united by using a sheet of newspaper after the first frost when the queens all cease to lay for the next few months, yet

We Promote Our Honey

Herbert Studier, Shell Rock Honey Farms, Glenville, Minn., reporting on Honey Week efforts in his area tells of solid backing for all inclusive publicity. These three pictures typify what was done. At right, National Tea display that increased honey sales for the week by 700%. Lower left, display at the Interstate Power Co., for the entire week, kept brilliantly lighted until 12 each night. Lower right, Ephraim Magnuson's prize honey, (Austin, Minn.) tops in the nation, winning the R. B. Willson Trophy.



before it is too cold for the bees to break their cluster during the daytime.

Augustus John Hinches
Newark, New Jersey

John T. Biba, Cicero, Ill.

How can I eliminate the presence of large black ants and roaches from the beehive?

I use hive stands under my hives. I attach small pieces of metal tubing for little legs, put on with large screws. That gets the hives up off the ground. Some beekeepers drive spike nails into the framework that the hives sit on, leaving part of the nail sticking out, and the hive sits on the head of the nails. In either case cloth can be wrapped around the legs or nails and saturated with oil, or the legs on the hive stands can be placed in shallow lids containing oil or kerosene. The ants will not pass through the oil. You must be careful using some ant poisons. If the bees get into the poison, it will kill them also. If you can find the ant runs, you can sprinkle ant powder all around the hole and runs.

Fred Rasmussen, Frankfort, Ill.

I should like to know if Caucasians have longer tongues than other breeds of bees. To one having red clover it is necessary for bees to have long tongues.

Caucasians definitely have tongues longer than Italian bees and they are more effective in pollination of red clover. This is partly overcome when Italians are used by a concentration of the bees on the clover at a time when there is no other attraction for them in large acreages of flower like sweet clover, alsike or ladino. This is usually accomplished by clipping the red clover so that it comes into bloom at a time when there is little competition from other nectar producing plants. There is no agreement on the number of bees which are needed for red clover pollination. Some think four colonies to an acre, others think one. From what little we know, about two colonies is sufficient, if other conditions are met.

John C. Stevens, Alstead, N. H.

Can maple sirup be fed to bees successfully?

Maple sirup is not good to feed to bees. It can cause them to have dysentery and the entire colony may be lost. Sirup made from beet or cane sugar should be used if feeding is to be done.

Tennessee's Honey Week Proclamation

Governor Frank G. Clement of Tennessee proclaimed October 25 through 30 as Honey Week. In doing so he made the following statement: "I doubt seriously that one person out of every ten thousand realizes the full value of the honey bee to agriculture—they would be shocked beyond words."

This statement coming from a public official proves beyond a doubt that beekeepers are not the only ones aware of the value of the beekeeping industry to our national economy.

In the picture, left, L. H. Little, State Apiarist; Buford Ellington, Commissioner of Agriculture; Governor Frank G. Clement; Earl E. Barham, State Chairman, Honey Promotional Program.
(Photo by Wallace Danley, Tenn. Conservation Dept.)

The Emperor's Bees . . .

After they had lain buried for 1174 years in the tomb of King Childuric 1st, (437-481) 300 golden bees were recovered and used to ornament Napoleon's coronation robe.—(Detroit Times, Detroit, Michigan—from Art White, Jackson, Mich.)

Bitterweed Honey . . .

After bitterweed honey stands in tanks a few months it loses some of its bitter flavor. Some say that if it is heated most of the bitterness will leave. It is a good plan to leave it on the bees since it is very good winter food. Very little dysentery shows in spring from colonies wintering on this honey. I can see where the honey producers would have trouble getting his combs free of the honey producer would have it only takes a small amount of bitterweed honey to ruin a lot of good honey. The flavour is very pronounced. No one has tried filtering but I think it would help. Perhaps bitterweed honey might have some medicinal value.—L. H. Little, Tenn.

More Melons with Bees . . .

According to a release by U.S.D.A., locating colonies of bees adjacent to melon fields in the Salt River Valley of Arizona adds up to more profit by harvest time. Edgar A. Taylor reports that during a recent growing season, cantaloup fields with bees nearby had yield increases averaging 81 crates of melons per acre. Seventeen commercial fields with no bees, compared with 20 fields with bees showed a production of 161 crates per acre without bees and 242 crates with bees.

You Asked for It . . .

Armand Dufresne, Auburn, Ohio

Is it too late to requeen some of my colonies now or would it be better to wait until spring? Will check my colonies this week to see if they are in good condition for winter. Is it all right to unite two colonies by using the inner cover and bee escape to find the queen? Can I buy cloth to strain my honey? I had to destroy one colony. I extracted the honey and heated it in a double boiler but the honey is not clear, tastes different, and is dark. I had some strong colonies that have not done well; a smaller eight-frame hive gave me four supers of honey. I sell my honey for 55c for comb (clover) and some fall honey for same price.

Yes, I am afraid it is too late to requeen your colonies. Better wait until next spring now.

You ask if it is all right to unite two colonies by using the inner cover. The way I unite two colonies is by the newspaper method. I go into the hive and kill the queen that I do not want to keep. Place a single sheet of newspaper on top of one colony, punch a few holes in the paper with a pencil, set the other hive on top of the paper, cover the hive and close up. The bees will chew through the paper and unite. Be sure one of the queens is done away with first.

I use cheesecloth folded double or triple to strain my honey. It can be bought at any store selling yardage material.

When you heated the honey from the colony that you killed, you evidently heated brood combs in with the regular honey combs. That caused the darker stronger taste. The pollen in the brood comb made the honey darker in color and also made it not quite as clear as honey from comb that was not used in the brood chamber. However, it is more healthful.

No one knows why some hives put up more honey than others that are in the same yard. Hive conditions are better for some than others. A younger more prolific queen, perhaps, produced a more energetic strain of bees.

We sell our honey all for the same price, the light clover and the darker fall honey. However we have customers who prefer clover honey, and those who prefer the fall honey. I think it depends a lot on your regular customers, and the competition that you have in your vicinity.

I Hive a Package

by David A. King

AFTER years of waiting, years spent in the study of bees from every available book and hoping for the time when I could have a few colonies, the time had at last come when I could realize my dream.

I drove to the factory branch in a nearby town and bought one complete hive, ten sheets of heavy brood foundation and a subscription to a bee journal.

Driving back home, I spent the balance of a rainy, chilly day writing an order to a mail-order company for the bees and figuring out how to assemble the hive. This latter proved to be a mild sort of Chinese puzzle, but I finally got the thing together so that it looked like it might hold.

Then came the wait for the bees. It seemed that the weather in California was not of the best and the bee breeder definitely would not make shipment until the weather was near perfect.

Week piled on week with the hive sitting out back empty and rather foolish looking. The fruit bloom came to its height and began to fade. I had already missed the best opportunity to start a new colony—according to the books I had read.

On the day of my first watering turn, the bees finally arrived. I had about an acre of garden, all very dry and all a loose sand that is very difficult to handle water on. I was as busy as a one-armed paper hanger with the itch! At this interesting moment the mail carrier brought the bees—a buzzing angry crowd in a tiny wire cage and heartily sick of being there.

What I should have done, and what a person with more practical know-how would have done, was to place the package in the shade somewhere and let one of the kids paint the outside of the cage with sugar sirup to feed and quieten the bees. Then, along toward night, they could have been hived with practically no fuss.

But, remember, I was a beginner with plenty of theoretical knowledge and almost no practical know-how. Besides, I was very curious about how they had come through. The bees looked all right at least there were very few dead—but what about the queen?

The instruction card nailed on the package suggested that the bees be jarred to the bottom of the cage, the sugar canister withdrawn, and the queen cage (which was suspended by a metal strap) lifted out. Sounded easy as they put it, so I faithfully jarred the bees to the bottom of the cage and continued jarring until they looked as if they might intend to stay there for a while. I then withdrew the sirup can—and the air was full of buzzing bees in an instant!

None of the bees seemed to have any idea of stinging, so I bravely pulled out the queen cage. "Her majesty" was in fine shape as were the four or five attendants in the cage with her. But, how in tarnation was I to get that mess of bees back into the cage? Obviously I couldn't, so I decided I had better try to hive them right then.

I didn't have an extra super to place on top of the hive. For some reason, I didn't think of removing part of the frames and putting the package right down inside the hive. Instead, I removed the hive cover, upended the open package over the frames, draped an old quilt over the whole mess and turned my attention to the queen.

As I examined her shipping cage, the screen, which I had thought was firmly attached, slithered out of place and the queen crawled out. I picked her up gingerly and tried to persuade her to return to the cage. None of that for her! Thinking that likely after riding together for a thousand miles or so, the bees ought to be acquainted, I pushed the queen under the quilt and into the hive.

Not two minutes later a good-sized ball of bees tumbled out through the hive entrance. I broke the ball up and there, sure enough, was the queen at the center of a snarling mass of bees who were intent on tearing her limb from limb .

I rescued her and allowed her to run back through the hive entrance. In an instant she was the center of another ball! I broke this second ball up and finally succeeded in getting the queen back into the shipping cage which I then prepared for introduction by removing the little cork stopper over the candy in one end of the cage. I placed the cage on top of the frames under the quilt and returned to my irrigating.

Toward night, I removed the quilt, threw the cage away and after pinching the queen cage down between two of the frames near the center of the hive, I replaced the hive cover.

The bees investigated and buzzed around everything and everybody on the place, but they never even threatened to sting. Things had begun to look up. I was in the bee business—or was I?

Utah

Our Cover

ORANGE

Prime honey source, with honey at a premium. More and more bees are welcome in the groves because they enhance the quality and set of fruit. A native of Asia, the orange was introduced into Florida by the colonists. Now it thrives also along the Gulf Coast, in the Rio Grande Valley, in Arizona and in California. Often the orange flow is rapid. Good locations are in demand and beekeepers may move long distances for the flow. Frequently, because of the earliness of the flow, colonies are not in shape to take full advantage of it. With a larger amount of reserve food in winter, good queens and early build up it is possible greatly to increase the returns from orange.

Honey from orange is light in color, heavy in body, and of fine quality that is much in demand on the markets. Crops from orange vary considerably but, in favorable years, substantial colony production is obtained. Orange honey has an exceptional bouquet and a delightful lingering taste, especially when it is not mixed with honey from other sources. Even when it is mixed, however, the characteristics of the orange predominate so that often mixed "orange" honey is still called orange.

From Here and There

Illinois

H. E. Dale, State President

H. E. Dale, of Herrin, is the new president of the Illinois State Association, elected at the annual convention in Springfield in November. Carl Hampleman, of DuQuoin, was chosen vice president; Hoyt Taylor, Pleasant Plains, secretary; Leroy Stockdale, Palos Park, treasurer.

The new president is a native of Hardin County and moved to Herrin in 1916. He has been engaged in beekeeping since 1934. He also served as vice president of the association for four years. He is currently president of the Southern Illinois Association which he organized six years ago. Dale runs about 600 colonies, including 200 in Tennessee. He is a frequent lecturer on bees before schools and civic groups throughout southern Illinois.

Montana

State Meeting

On December 3 and 4 the Montana State Association held its annual meeting at Lewistown, presided over by president Harry Rodenberg, Jr. About 75 people participated in what was agreed to be one of the best meetings ever held by the group.

The principal theme was honey promotion. Under Chairman Lester Hall the committee had furnished honey to the hotel dining room and to several nearby restaurants to assure that honey would be served regularly during the week. In addition, special honey displays had been set up in food markets and four observation hives attracted attention at strategic points in the city, a good idea for other associations to follow.

Among those on the program were Lloyd Graham, state inspector; insurance agents presenting special propositions on fire and liability insurance; and Bob Dadant, Dadant & Sons, Hamilton, Illinois. Displays of hive handling equipment were on hand at the local warehouse of Howard Foster; a film on the Don-Lo loader was presented; and the Texaco film on bees was shown at the banquet.

In recognition of her 25 years service as secretary, Reverend Baldwin presented to Mrs. O. R. Burdett from the members a gift of appreciation. Officers elected for 1955: Lester Hall, president; Ralph Schmeideskamp, vice president; and Mrs. O. R. Burdett, secretary.

(R. H. Dadant)

Georgia

Valdosta Convention

At Valdosta some 125 beekeepers braved a dry era to gather together to discuss their problems. The season has been very dry, following drouth in 1953 and the crop was only mediocre as a consequence. Many bayous, lakes and sluggish rivers became dry in 1954 that previously had never been known to fail.

One insistent theme was for support help for bulk-comb honey as we have had for extracted and resolutions were passed calling upon the Department of Agriculture to help. All agree that there is not an oversupply of bulk-comb but that distress early selling at under cost levels could well be remedied by a support price allowing orderly marketing which would dispose of all stocks by mid January or February.

* * *

Crimson Clover

According to J. H. Girardeau, scientist with the Georgia Coastal Plain Experimental Station, crimson clover is rapidly becoming a factor in Georgia honey production as this plant becomes widely distributed in the northern and central areas of the state.

Girardeau is out with Mimeograph N.S.1 on reseeding Crimson Clover, as a honey plant in South Georgia. Crimson is already well established as a source of nectar in more northern areas of the state.

His conclusions are that crimson on heavier soils may be depended upon as a good honey source. Weather not interfering there appears to be a good possibility of moving to the crimson clover for build-up and possibly some surplus and move back to the swamp edges for the gallberry flow which follows immediately afterwards. His report includes a map of the territory which has, so far, been investigated.

(M. G. Dadant)

Manitoba

Convention

Reporting the convention of the Manitoba Association, Mrs. D. A. Kristjansson (of the Manitoba Co-operator, Winnipeg) says that the Association, at the mid-November meeting, called for research to develop a device that will make it easier than it is now to locate the queen in the colony. That's something new in our horizon and, who knows, it may work.

A resolution calls for a change in the Honey Act so that permits may be issued certifying bee equipment to be free of disease before sale or movement within the Province. R. J. Sellen, apiary inspector, attributes the present improved disease situation to the continued efforts of the 14 inspectors; and to the use of wax rendering equipment and the effective use of preventive drugs.

The Association is planning an all-out drive to increase membership under the leadership of a new membership committee (past President E. A. Morris; Peter Fast and J. H. Arnett).

The number of beekeepers in the province increased to 1250 during the past year with the number of colonies showing an increase of 2500, mostly among commercial producers;

average 1954 production, 112 lbs., well below the 1953 average of 138, but above the long time average of 100 lbs.

Canadian beekeepers are faced with a situation of not producing enough honey for the market and the number of beekeepers and colonies has fallen in the last few years. "If this trend continues the per capita consumption of honey is likely to drop and this is a situation beekeepers do not want," President E. A. Morris told the convention.

The 1954 honeyflow reached its peak in the five-day period, July 24 to 28 and in most areas of the province, the flow was nearly over by the end of July, Professor A. V. Mitchener told the convention. Professor Mitchener, who retired as chairman of the University of Manitoba's entomology department, this fall, reported that records kept for the past 31 years indicate that Manitoba beekeepers should have their package bees around the middle of April, in order to have them established in time to take advantage of the early fruit and dandelion flow. Professor Mitchener urged more beekeepers to keep records and to make better use of the information contained in the annual honeyflow reports.

S. J. Lye, Oakville, the Manitoba Beekeepers' Association representative to the Canadian Beekeepers' Council outlined the work of this organization, which in addition to correlating the work of the provincial organization, carried on work in the fields of advertising, honey promotion, research and grade standardization.

G. F. Sherlow, Swan River, was elected president of the Association, succeeding E. A. Morris, Portage la Prairie. Named vice presidents were Walter Durston, Dauphin and E. J. Burnett, Roland. S. J. Lye, Oakville, was named honorary president and will continue to represent the Association on the Canadian Beekeepers' Council.

Paul Uhrin, Pine Creek captured the Clover Crest trophy for the best exhibit of honey in the show, held in conjunction with the convention. He also won first prize for liquid honey and his wife third prize for honey cookies. Mrs. S. J. Lye, Oakville was awarded first prize for granulated honey and Mrs. S. P. Donkin, first prize for beeswax and for honey cookies. Mrs. Wm. Flay, Hartney took second prize in the classes for granulated honey, liquid honey and beeswax.

Standard Works - - - New Titles

For your reading and for your library.

THE HIVE AND THE HONEY BEE—Roy A. Grout $4.00
With fifteen other authors. Standard for the beekeeping world. 650 pages.

QUEEN REARING—Laidlaw & Eckert 2.50
For all uses, beginner or professional. 160 pages.

AMERICAN HONEY PLANTS—Pellett 6.00
An encyclopedia of flowers. 460 pages.

HONEY IN THE COMB—Killion 3.00
Authority on comb-honey production. 130 pages.

FIRST LESSONS IN BEEKEEPING — Dadant. 127 pages 1.00

WORLD OF THE HONEY BEE — Butler. 225 pages 4.50

BEES TO THE HEATHER — Whitehead. 100 pages 3.00

BEHAVIOR AND SOCIAL LIFE OF HONEY-BEES—Ribbands 4.50

BEES; THEIR VISION, CHEMICAL SENSES, AND LANGUAGE, 1950—K. Von Frisch 3.00

FLORA APICOLA de la AMERICA TROPICAL—Ordetx 6.00

FIRST BOOK OF BEES—Tibbetts. 70 pages. Fine 1.75

HONEY BEE—Adrian. 40 pages. Children 2.00

HONEY PRODUCTION IN THE BRITISH ISLES—Manley. 325 pages 3.00

LIFE OF LANGSTROTH—Naile. 175 pages 2.50

HONEY & HEALTH—Beck & Smedley. 250 pages 3.50

HISTORY OF AMERICAN BEEKEEPING — Pellett. 200 pages 2.50

BETTY THE BEE—Paisley. Children ..... .50

POLLEN LOADS OF THE HONEYBEE—Hodges 3.00

BETTER QUEENS—Jay Smith 4.00

HONEY FARMING—Manley 3.00

ABC AND XYZ OF BEE CULTURE—Root 4.25

QUEEN REARING—Snelgrove 4.00

SWARMING AND CONTROL—Snelgrove 2.50

BEEKEEPING IN ANTIQUITY—Fraser 2.50

A LIVING FROM BEES—Pellett 2.50

BEE HUNTING—Lockhart ..... .50

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AMERICAN BEE JOURNAL HAMILTON, ILLINOIS

MEETINGS

Annual Meeting
American Bee Breeders Association
Forrest Hotel—Hattiesburg, Miss.
January 8, 1955

9:00 Registration.
9:30 Call to order by the President.
9:35 Invocation—To be announced.
9:40 Welcome Address—To be announced.
9:50 Response—William W. Wicht, Hattiesburg, Miss.
10:00 President's Address—James Newton, Baton Rouge, La.
10:30 Report of Secretary-Treasurer—N. C. Jensen, Macon, Miss.
10:45 Roll Call by States.
11:00 Trucking Package Bees from South to North—M. S. Fortune, Mayhew, Miss.
11:30 Open Discussion.
12:00 Luncheon.
1:30 Package Bees and Queen Prices as they Affect the Future—E. C. Bessonet, Donaldsonville, La.
2:00 Why Hybridization Must Supply the Bees of the Future—G. H. Cale, Jr., Hamilton, Illinois.
2:45 The Functions of the Honey Industry Council of America—N. C. Jensen, Macon, Miss.
3:15 Findings of Multiple Matings of Queens—Dr. Taber, University of La.
3:45 Round Table Discussion—Paul Cutts, Chairman, Chipley, Fla.
Adjourn.

Michigan Farmers' Week
East Lansing, Feb. 9-10

Date: Wednesday, February 9th, and Thursday, February 10th, 1955.

Place: Rooms 103-104 Kellogg Center, Michigan State College, East Lansing.

This is the annual Farmers Week meeting. All beekeepers are welcome. The program will bring you up-to-date on activities within the industry and give you an opportunity to learn more about beekeeping.

Charles A. Reese, Extension Apiarist for Ohio will give talks on the "Honey Queen and Package Bee Industry in the Southern States" and "The Acceptance of Beekeeping as an Important Factor of Basic Agriculture in the Southwest."

E. C. Martin,
Program Chairman

Alabama State
Montgomery, Jan. 14

The Alabama State Beekeepers Meeting will be held in Montgomery, Alabama, January 14, 1955. Various subjects will be discussed by H. C. Short, Fitzpatrick; F. E. Guyton, Auburn; W. A. Hosea, Birmingham; Austin Ezelle, George Blake, and W. A. Ruffin, all of Auburn.

F. E. Guyton, Secretary-Treasurer

Twelfth Annual Convention
American Beekeeping Federation, Inc.
Hotel Sherman, Chicago, Illinois
January 25-29, 1955

Tuesday, January 25

9:00 a. m. Executive Committee, American Beekeeping Federation. Apiary Inspectors of America, as they arrange.

1:30 p. m. Board of Directors Meeting, American Beekeeping Federation. Executive and/or Directors meetings of: American Bee Breeders Association, Honey Packers and Dealers, Bee Industries Association, and other Industry organizations, as they arrange.

8:00 p. m. Honey Industry Council: Mr. Alan I. Root, Chairman.

Wednesday, January 26

8:00 a. m. Registration.

9:30 a. m. Call to Order. Invocation: Rev. John Wade Dubecq, Palos Park Presbyterian Church. Address of Welcome: Hon. William G. Stratton, Governor of Illinois. Response: Ray Reed. President's address: H. A. Schaefer; Keynote speech: Allen B. Kline, President, American Farm Bureau Federation, "Our Marketing Problems." Recess.

1:30 p. m. Marketing and its Problems. Chairman and Co-Chairman, S. Joaquin Watkins and Roy Grout. Mrs. Harriett M. Grace—The American Honey Institute. Joaquin Watkins—The Federation Marketing Program. Harold J. Clay—The Price Stabilization Program. Chester Freeman—What the Industry Can Do to Promote Honey. Hazel Atlas—Packaging and Merchandising. Paul C. Majesky—Sales Agent, Hazel-Atlas Glass Co. Robert Meloy—Research Chemist—Sioux Honey Ass'n., Sioux City, Iowa.

6:30 p. m. Auxiliary Program—Mrs. Henry Schaefer, President.

8:00 p. m. 500 Club—E. H. Adee, as arranged. Non-Commercial Beekeepers, as arranged. Marketing Committee—State Directors, S. Joaquin Watkins, Chairman.

Thursday, January 27

9:30 a. m. Tom Shield—How Canada Promotes Honey Consumption. Lloyd Percival—Honey as a Source of Energy. L. E. Parett—Secretary of Public Relations, Illinois Agricultural Association. Otto Pfretzschner—Colorado Promotes Honey Consumption. Edwin Anderson—Honey Candies and Honey Spreads—State College, Pennsylvania. Gordon Townsend—Preparing Honey for Market.

1:30 p. m. Research on Seed Production of Forage Legumes. Chairman: Clarence Benson, Phoenix, Arizona. Dr. F. G. Holdway, Dept. of Entomology and Economic Zoology, University Farm, St. Paul, Minn. C. D. Floyd, Dept. of Entomology, University Farm, St. Paul, Minn.

3:45 p. m. Dr. Clayton Farrar, Bee Culture Laboratory, University of Wisconsin, "The Need for a Better Bee." G. H. Cale, Jr., Hamilton, Ill., "Commercial Application of Genetics to Bee Breeding."

7:00 p. m. Banquet: J. W. Newton, Toastmaster, Queen Breeder and Past President, American Honey Producer's League. Banquet Speaker: Dr. George W. Irving, Jr., Deputy Administrator for Research, Agricultural Research Service, United States Department of Agriculture, "Research Creates Wider Markets for Farm Products."

Friday, January 28

9:00 a. m. Honey Research—R. B. Willson, Chairman, Honey Utilization Committee. Dr. J. W. White, Jr., Eastern Regional Research Laboratory, Philadelphia 18, Penna. Handling Honey: Dr. V. G. Milum, Department of Entomology, Univ. of Illinois.

10:15 a. m. Resolutions.

11:00 a. m. Election.

1:30 p. m. to 3:30 p. m. Bee Diseases—Professor F. B. Paddock,

State Apiarist, President of Apiary Inspectors of America, Chairman. Symposium on Diseases—Foreign—James I. Hambleton, Beltsville, Maryland. Nosema — Dr. C. A. Jamieson, Ottawa, Canada. European Foulbrood—J. O. Moffett, Colorado. American Foulbrood—Dr. T. A. Gochnauer, Minnesota. Panel Discussion. Dr. J. E. Eckert, Moderator; John Holzberlein, Colorado; Ray Reed, California; John Jessup, Iowa; J. W. Newton, Louisiana; Burel Lane, New York; Carl E. Killion, Illinois.

3:30 p. m. Honey Industry Council.

5:00 p. m. Director's Meeting (after early dinner).

New Jersey Beekeepers' Association
Thursday, January 27, 1955
Y.W.C.A., Hanover St.,
Trenton, N. J.

Program

Otto Eberle, President, West Caldwell, presiding.

9:30—Get Acquainted Period. Registration for those entering Honey Exhibition.

10:00 — Report of the President, Otto Eberle. Report of Secretary-Treasurer, Milton H. Stricker. Report of officers and standing committees.

10:45—Illustrated talk "Beekeeping in Peru," E. J. Dyce, Professor of Apiculture, Cornell University.

12:00—Adjournment for lunch.

1:30—Election of officers. "Short Cuts in Apiary Management for the Hobbyist," Dr. E. J. Dyce. Demonstration of swarm control with actual bee equipment; audience participation. Report of experiment station work, Dr. Robert S. Filmer, Research Entomologist, Experiment Station, New Brunswick, N. J. Report of bee inspection work by Paul L. Holcombe, Supervisor of Bee Culture, Department of Agriculture. Awarding of prizes for honey contest.

Middlesex Co. Beekeepers Assoc.
Waltham, Mass., Jan. 29

The next meeting of the Middlesex County Beekeepers' Association (Mass.) is to be held on Saturday, January 29, at the Waltham Field Station.

Plans are now being made for the big Spring Flower Show sponsored by the Boston Horticultural Society in March, at which the Association has a display. In past years the Beekeepers' Exhibit has been one of the most interesting exhibits in the Show, and the public looks forward to it eagerly.

A gala Christmas party was held at our meeting in December, and the members were visited by Santa Claus himself who distributed a small gift to each person present. Community carol singing was enjoyed by the members.

L. C. Proctor, Secretary

Southern Conference for 1955

Directors announce that the Southern States Beekeeping Federation Meeting will be held October 10 and 11, 1955, at Asheville, N. C.

A. D. Hiett of Martinsburg, W. Va., is again President, Dr. E. K. Patton of Ben Hill, Ga., Vice President, and W. A. Stephen, Extension Specialist in Beekeeping of Raleigh, N. C., is Secretary.

Southern States Federation

Approaching 30 years of existence, the Southern States Beekeeping Conference held a large and enthusiastic meeting at the Orange Court Hotel in Orlando, Florida, December 1 and 2. The Florida Association served as host. Three hundred registered, with over 400 in attendance and 200 at the banquet.

Three themes were carried out by President Hiett and state officers: enthusiasm for cooperation, honor to old-time beekeepers at the banquet, and perpetuation of the enthusiasm and good will for which the Southeast is famed. These were carried out with fervor as shown by the fact that donations of honey, supplies, queens and cash donations raised $1200 for the American Honey Institute. J. H. Cook of LaBelle "called the trick" when he offered his check for $100 if at least $1,000 was raised, and didn't have long to wait to present his check.

Special events of note on the program include Harold Clay's discussion of the support program with interjections of bulk comb desires from the audience; Dr. Abbott's discussion of royal jelly; Harriett Grace's presentation of Institute work; Dr. E. Oertel's work on white and sweet clover in the South; panel discussions on bulk comb honey led by Leslie M. Lewis; a meeting of the ABBA to protest postal regulations which would apparently necessitate 16 cents postage on each queen sent through the mails; and a special session of local packers for the states of Georgia and Florida. President Henry Schaefer delivered a forceful talk on the work of the Federation for beekeeping.

Ladies in attendance were well entertained by a luncheon at the Fosgate Citrus Plant with nearly 75 present.

The Florida Association and Florida Cooperative presented the local Florida situation on the afternoon of the second day, followed by the banquet in the evening. This will be reviewed separately.

Special resolutions included return to old postal regulations, a request for price support for bulk comb honey, and recommendations for proper price levels for bulk comb, retail and retail store packages.

Alfalfa Insects . . .

E. C. Martin of the Department of Entomology at Michigan State College is the author of a leaflet on "Insects Affecting Alfalfa."

Leafhoppers, lygus bugs, spittlebugs and grasshoppers all do their share of damage to alfalfa in Michigan. Martin discusses his tests with various insecticides. Toxaphene seems the least harmful to honey bees.

Clover Seed Prices Advancing

December 7 report from the Marketing Service of the U. S. Department of Agriculture indicates that legume seed prices are advancing from week to week and that the demand and sale is brisk. This includes the clovers, alfalfa, vetch, and lespedeza.

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Dadant's for Honey Labels

Editorial

We'll Meet You in Chicago

The American Beekeeping Federation and other groups that represent organization of the bee and honey industry meet in Chicago at the Sherman Hotel, January 25 to 29. The convention program will occur on January 26 through 28. We urge everyone associated in any way with beekeeping and honey to attend.

In an article entitled "Are You Selling Your Industry for a Dollar?" which appeared in the Minnesota Beekeeper, M. H. Haydak and C. D. Floyd had this to say.

"The value to be gained from membership in the Federation and in your Beekeepers' Association is not obtained by what one can get out of this membership, but rather by what one can contribute in the form of ideas which may be worked on and elaborated by other members. In other words, for a successful Federation, it is team-work that counts with every local association on the team pulling its fair load."

Richard Evans, in a recent broadcast, stated, "To give to receive is without value, but to give not to receive brings the greatest riches of all."

So we'll meet you in Chicago to exchange ideas and to work together to make our industry better in every way. You and I cannot afford to not be there!

Sweet Clover Seed

Thirty-nine million pounds of sweet clover seed is forecast for 1954 by the United States Department of Agriculture. This is fourteen per cent above 1953, partly due to larger acreages and partly to larger per-acre averages. Importations of foreign-produced seed dropped to ten million pounds this year, a 30% change. Three states, Texas, Minnesota and Kansas, produce half of the total crop. Texas has about 74% Hubam and 22% biennial Madrid; Minnesota, 40% biennial white, 27% biennial yellow, balance mixed. Kansas produces 94% Madrid biennial yellow.

We look for a gradual return to sweet clover in farm rotations. Although the sweet clover weevil is still a deterrent it has lost part of its virulence. Agronomists still recognize sweet clover as being highly desirable as a soil builder and a nitrogen producer in crop rotations.

Population Gain and Honey

Wheeler McMillen, chairman of the board of the National Farm Chemurgic Council, in a recent address pointed out that the relentless increase in population is a formidable force. Every 24 hours agriculture has 7000 brand new customers. Every day sees 4500 new brides making their first appearances in the food markets. Every 30 days the United States has enough additional population to occupy a new city of 200,000, about the size of Richmond, Virginia, or Syracuse, New York. We end every year with enough new people for a city as big as Philadelphia or Los Angeles. Each new customer will be in the market for as long as he lives for about 1600 pounds of food every year.

Do we have a marketing problem? Yes, we usually do have! But we needn't have, in view of the above facts, IF we cooperate together in a program to raise funds for promotion and consumer education such as that being proposed by the American Beekeeping Federation and the National Honey Council. A cent a can from the producer matched by a cent a can from the purchaser is enough to carry on such a program of promotion and consumer education. Will the honey industry awaken and support such a plan?

Typical Beekeeping Friendliness

Coming to us for the holiday season was a copy of "The Scots Pictorial Calendar" in color of typical and attractive Scotch scenery from sports to castles; from lakes to mountains. As each month is allotted two pages, there are 24 fine pictures in all.

What made the gift most attractive was that the only inscription on it was "All good wishes to you from Scotland." Wasn't that a magnanimous thing to do? It leaves us wondering just who over there thinks enough of us to remember us. Of course we might have recourse to searching among the handwritings of our subscribers and correspondents in Scotland for the identity. How much better though, to let him remain incognito, and harbor that nice feeling that we are being remembered by all of them, with one unselfish colleague, mailing the package. Typical of beekeepers we would say.

I Wish I Had Known . . .

Looking back over twenty years of extensive beekeeping which began with the chance hiving of a swarm of bees on a Sunday afternoon while returning from a swimming hole, here are some of the things I wish I had known—

Where the best bee locations were —(These are where the best beekeepers are, as a location is only as good as the beekeeper's skill dictates.)

What the best strain of bees was —(Which is the kind the best beekeeper has, since the bees seldom rise higher than the skill of their keeper.)

How to "sell my first million"—(Then I would not have had to learn over and over again that each new crop must be sold by itself and each new year represents a special new effort in merchandising; that each new crop is never enough to supply the demand one finds when he goes out and hunts for customers.)

How to choose between the innumerable fads in beekeeping, including many of my own devices and to know immediately which was sound . . . (That well-made and well-painted equipment is the cheapest to build or buy. That simplified, standardized equipment is the easiest, most economical to operate.)

That the simplest top entrance for winter ventilation is to reverse the inner cover, place the inner cover block on top edge of same — on warmest side, replace outer cover, and put a weight on it.

That the best beekeeping practice is supplementary . . . That a thorough knowledge of bee behavior is a primary essential of good beekeeping—(and this will free the operator from the danger of getting tangled and lost in a maze of non-essential manipulations.)

That the best efforts in processing honey are only supplementary in a small way as compared to the amazing accomplishment of the bee in its production. (Remember, honey is "always best" when it comes fresh from the hive. Monkeying with honey has spoiled millions . . .)

That the best method of harvesting honey is the old-fashioned bee escape.

That after over twenty years of rugged, trial-and-error experience, I feel that we are just beginning to learn how to keep bees and to process, pack and sell honey.

H. L. Maxwell, Virginia

JENSEN'S

Package Bees and Queens for 1955

Oh yes,- there's something new in queens as well as cars this year. In Dadant's New Improved "Starline" Hybrids, that is. Scientific breeding research and years of testing have brought astounding results.

Impartial tests over the past four years prove Starline Hybrids have 18% greater egg laying ability (Acceleration, in car parlance.)

Larger, more compact brood pattern resulting in larger forces of worker bees, "Honey Getters."

Less inclined to swarm even if apartments (hives) become somewhat crowded at times due to neglect or stupidity of management.

Ability to withstand severe cold of winter, their greater vigor results in "quicker starting" and fast spring build-up.

Up to 38% greater honey production (pay-load for the beekeeper) than common stock, in three-year trial run.

Evenly tempered (gentle) to keep your blood-pressure normal.

All of the above may be yours in the New crosses for 1955. Prices same as last year. SPECIAL INTRODUCTORY OFFER: On all orders for regular stock we will substitute 10 STARLINE HYBRID QUEENS (or 10% of order whichever is least) at regular stock prices. Write for circular and price list.

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BOOKING ORDERS for 1955 for Carniolan and Caucasian queens. Write for prices. Tillery Brothers, Greenville, Ala.

ITALIANS—Packages, queens. Martz, Rt. A2, Box 846, Vacaville, Calif.

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QUEEN REARING and package bee equipment. Box 388, Picayune, Miss.

FOR SALE—Our entire bee business consisting of about 650 colonies bees, two-story, full depth equipment, in good condition. Equipment to handle 700 colonies for extracting. Can buy all locations, the best in the state. Will sell with or without extracting plant. Good combs. 45-fr. extractor, boiler, uncapping machine, etc. All must go. Our bait business has increased to where we must sell the bees. Fred Gould & Sons, Angola, Ind., Rt. No. 3.

MODIFIED DADANT equipment, new and used, bargain prices. No disease. Hives, frames, foundation, supers, etc. Also 100 cartons pound jars cheap. John McColl, Tecumseh, Mich.

EQUIPMENT for 300 colonies, 200 inspected double brood colonies, plus living quarters, honey house and extras. William A. Fink, Rt. 1, West De Pere, Wis.

FOR SALE—800 colonies with Modified Dadant equipment. Extracting equipment and truck. 25 locations in Central Northwest. House and warehouse can be rented. Box LB, c/o American Bee Journal.

BECAUSE OF AGE WILL SELL, part or all, standard and Dadant hives, supers, Woodman fifty-frame extractor, large honey tank, honey pump, uncapping machine, Henshaw capping press, and motors. Write or phone Walter McKinley, Audubon, Iowa.

HONEY and BEESWAX WANTED

WANTED — Honey and beeswax. State what you have and price. Roscoe F. Wixson, Dundee, N. Y.

SMARTWEED honey wanted. Rocke Apiaries, Eureka, Ill.

HONEY WANTED — Extra white, white and light amber, in 60's. Send sample and quote price. Cash paid. Clearbrook Honey Farms, Clearbrook, Minn.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 2613 South Yates Ave., Los Angeles 22, Calif.

WANTED — Dark honey, small or large quantities. R. L. Griggs, Hancock, Iowa.

HONEY AND BEESWAX WANTED in trade for supplies or cash. Hodgson Bee Supplies Ltd., 565—13th Ave., New Westminster, B. C., Canada.

HONEY WANTED — Highest prices paid. Submit samples in each grade. Schultz Honey Farms, Ripon, Wis.

CASH PAID for white and amber extracted honey. Send samples and state quantity available. Prairie View Honey Co., 12303 Twelfth St., Detroit 6, Mich.

Copy for this department must reach us not later than the tenth of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

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WE ARE PAYING top prices on beeswax shipped to one of our plants. Sioux Honey Association, Lima, Ohio; Rogers, Texas; Anaheim, California; Tacoma, Washington, and Sioux City, Iowa.

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40 cases of section comb honey. L. W. Miller, Piper City, Ill.

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HELP WANTED for 1955 — Give experience, age, height and reference. Do not apply if you drink. Howard Weaver, Navasota, Texas.

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Colorado Promotes Honey—

(Continued from page 13)

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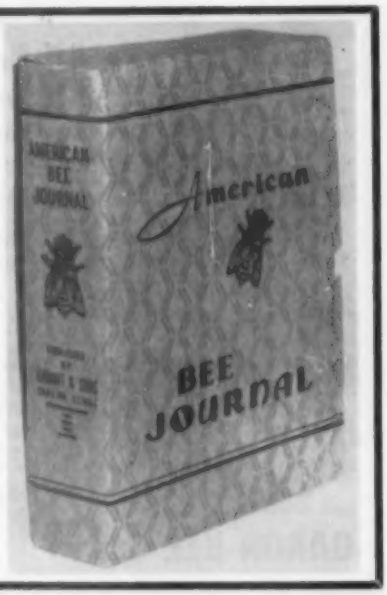

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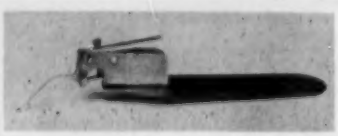

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We will see you at the National Beekeeping Federation meeting in Chicago, on Jan. 26, 27, 28.

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CROPS and MARKETS

by M. G. Dadant

Honey Selling

In practically all instances, reports coming in are to the effect that honey is selling at least moderately well and likely better than last month, except that there has been a slight lull during the two Christmas and New Year weeks. All in all, however, there seems to be quite an impetus to the demand for honey even though there was probably not as great a promotional effort as was made a year ago in cooperation with marketing authorities in Washington. In general, in the eastern areas the market is quite steady and this could perhaps be a criterion also for the West Coast. It is in the central areas probably that the demand is better than a year ago and moderately cold weather has likely added to this demand.

Honey on Hand

In spite of beekeepers holding honey for their individual trade and individual large producers holding honey until after January 1 on account of a favorable tax position, practically all other honey is in the hands of the packers with a comparatively few lots held by beekeepers for a presumably advancing price. Our reports from various states vary from no honey on hand on the part of beekeepers to as high as perhaps 35 to 40 per cent of the crop still left, and in such cases held in strong hands where there is question of the possibility of selling before the spring season.

Just what the packers have is, of course, questionable but from reports we can get, the amount is not too excessive although there likely has been a falling off in the eagerness with which this honey is bought since the foreign demand has largely been cut off by the dropping of the export subsidy, and since Canada is apparently not now actively buying, having purchased enough for immediate needs at least.

Prices

We still have reports of prices based on the government support price but in most instances prices offered and prices at which honey is sold are in excess of this. We would guess that of the majority of honey in the eastern and central western states white honey is about 13½ to 14 cents and amber grade about 12 cents, with some ranging higher and very few lower. In the southern intermountain territory and on the Pacific Coast prices do not seem to be quite so favorable. Here apparently the long haul to other markets is a deterrent in boosting prices to much higher levels but, of course, this is largely compensated by the fact that comparatively small amounts of honey are still in the hands of producers.

We are surprised, in view of the particularly strong jobbing price on honey, that in many cases the retail price has not advanced commensurately. Apparently the spread was sufficient to carry the additional price, or the price is being maintained on the basis of honey previously acquired. We learn that one-pound jars in central areas still are 31 cents and the bulk of them 37 cents on the retail shelves.

One thing does seem apparent and that is that amber and off-grades are finding a readier market this year than previously. Perhaps this may be due to the fact that the European markets do like a strong honey at least in part and some of the amber grades have moved in this fashion. It is to be hoped that the policy of helping deliver honey into foreign markets will not be reversed another year simply because our crop was short in 1954. For the amber grades, at least, this has proven a boon although likely a little more cautious policy on white grades might have made for a steadier market in the U. S. A., or rather assured of ample honeys for the domestic trade throughout the year until the new season advances.

In the Canadian provinces, it is apparent that honey stocks are down to a "bare necessity." Whether sufficient has been bought from United States stock to alleviate the situation is still a question.

Enough For the Season

Practically all reports read that honey is going to be short by the spring season and likely packers will again be searching for honey after the bulk of their stocks have moved on and after all available honey at the lower figure has been cleared up.

It is our honest opinion that there may be a lull during January in the price offered for honey which will be followed by a price at least commensurate with what was offered in November and early December since it will be necessary for replacement of stocks. We see no reason why the Canadians should not be calling again for more honey as packer stocks are reduced, especially since little apparently is available from producers, most of it already having been sold.

Canadians are suggesting that such stocks as are on hand in the various provinces are bringing to the producer from 16 cents to 19 cents a pound with very little available at these figures. On this basis, there is reason to expect that additional stocks may be wanted from United States producers on the basis of 14 or 15 cents.

More and more, we hear of sales at 14 cents to 15 cents for white honey in central and eastern areas although in western areas figures are still around the basis of 12½ to 13 cents on white with 10½ to 11 cents for amber.

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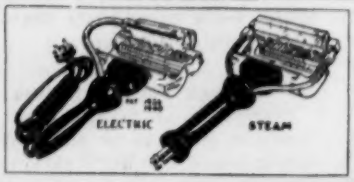

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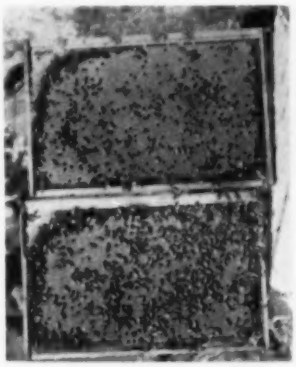

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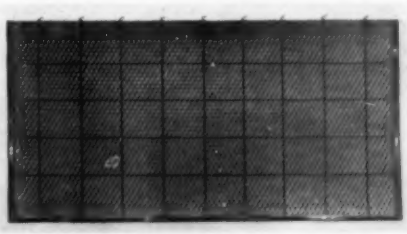

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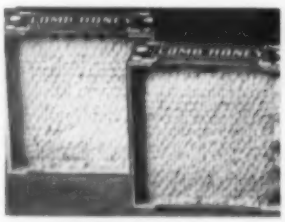

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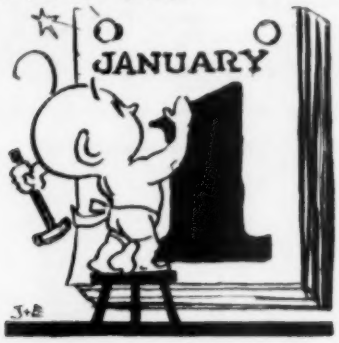

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